THE MIDAS TOUCH:

A THEORY OF RESOURCE CURSES

by

Daniel Arbucias

A dissertation submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Political Science and International Relations

Fall 2018

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ACKNOWLEDGMENTS

Several people deserve recognition for providing support throughout this journey, on a professional and personal level. I would like to thank Daniel P. Kinderman, Ph.D. for his steadfast and continuous advice, guidance, and academic support since the inception of this project. As chair of the dissertation committee, his early contributions helped orient and tailor the *theory of resource curses* in its nascent stages, which provided the groundwork for future hypothesis testing and policy recommendations. I would additionally like to vehemently thank Benjamin E. Bagozzi, Ph.D. for his sharp and instructive advice, which helped tailor the statistical components of this dissertation into a more focused analysis. It is with his firm support, which went above and beyond his duties as a professor, that this dissertation has been completed in a timely fashion. His advice on theoretical matters, combined with his perceptive guidance on this dissertation's methods, cannot be overstated. Furthermore, his proofreading of this work has greatly improved the final product from its original version. Committee members Julio F. Carrión, Ph.D. and Lawrence Agbemabiese, Ph.D. also deserve my heartfelt appreciation for their valuable insights and advice contributing to this project.

Other professors at the University of Delaware also deserve sincere and special appreciation. Jennifer K. Lobasz, Ph.D. helped narrow down the focus of this dissertation in its nascent stages, Jason D. Mycoff, Ph.D. founded the base of the statistical analysis for this work, and Matthew S. Weinert, Ph.D. taught me how to think critically.

My professional friends and colleagues, who have supported and helped me throughout my graduate education also deserve special appreciation. My cohort has played a special role in not only providing academic feedback, but motivation and emotional support as well. Finally, I have been blessed with wonderful parents who have consistently supported and encouraged my educational pursuits and provided me with a stable and loving founding on which to build a career. This manuscript is dedicated to them for their unending proofreading and unconditional love.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This work conducts a comparative analysis on how diamonds and petroleum produce different outcomes in resource curse states. Much of the extant literature seeks to uncover why certain states experience the resource curse while others do not, ignoring vast variations in processes and outcomes among those states experiencing a curse. Conversely, this work does not engage in such ontological arguments, but is rather concentrated on decoupling differences among resource curse states rather than identifying why some states fall into this trap. The theory of resource curses hypothesizes that different resources lead not only to different outcomes among resource curse states, but in fact to different resource curses. Many analyses of the resource curse treat resources only as important as the revenues they generate, ignoring unique material and social qualities those resources possess. This theory considers revenues salient factors in determining differences among cursed states without ignoring how resources' intrinsic qualities influence political, economic, and civil outcomes. Six hypotheses will be tested to evaluate competing resource curses. A quantitative assessment of thirty-five resource curse states will establish distinct linkages between resources and resource curses. Additionally, qualitative perspectives will analyze how diamonds and petroleum may lead to different economic, political, and violent resource curses.

Chapter 1

INTRODUCTION

In drafting the moral conundrums of *Metamorphoses*, Ovid, the Roman poet living during the reign of Augustus, penned the legend of King Midas and his golden touch. According to legend, the old master of Midas was found inebriated in his rose garden by some peasants and was taken to the king for judgment. Once a wise and prudent leader, King Midas pardoned his former schoolmaster for his drunkenness. When Bacchus, the Roman god of wine, noticed this act of clemency, he granted the wise leader one wish. King Midas answered with, "Grant me that whatever my body touches will turn into gold" (Ovid 2004:373, Book XI). In one stroke, the wise king turned fool, and even though he could scarcely imagine greater wealth, "he was unable to relieve / his empty stomach or his burning throat / so justly tortured by the hateful gold" (Ovid 2014:374). Greedy and hungry, Midas learned to detest wealth and scorn his foolishness, but it was only after he attempted to swallow liquid gold that he realized his mistake. In a similar way, and just like the wise King Midas acted foolishly, many countries tend to mismanage their newfound wealth in foolish ways. This may not lead to a Midas Touch *per se*, but it can lead to a resource curse.

The legend of King Midas is two millennia old, but the lesson still applies. When encountered with the potential of great wealth, sovereign states oftentimes act foolishly, misspending resource revenues, encouraging rent-seeking behavior, and tumbling into violent conflict. Much like the fabled King Midas who lusted for gold, this may also lead to their demise. Instead of attempting to explain why certain states experience the

resource curse while others do not, this dissertation seeks to decouple differences among resource curse states, hypothesizing that different resources lead to different curses. By singling out two resources, diamonds and petroleum, this dissertation will illustrate how both the intrinsic qualities of these resources combined with the revenues they generate result in different outcomes among states. The aim is to establish a link between diamonds and petroleum, and the processes and outcomes of resource curse states.

According to the *theory of resource curses* proposed in this dissertation, these resource-backed institutions, in turn, determine outcomes and the type of resource curse befalling states. Thirty-five states demarcated into two major categories will be evaluated. The first category is comprised of thirteen diamond states and includes the following countries: Angola, Cameroon, Republic of the Congo, Democratic Republic of the Congo, Cote d'Ivoire, Ghana, Guinea, Guyana, Liberia, Russia, Sierra Leone, Tanzania, and Zimbabwe. The second category composes the group dubbed petroleum states, including the following 24 states: Algeria, Angola, Bahrain, Brunei, Ecuador, Equatorial Guinea, Gabon, Iran, Iraq, Kazakhstan, Kuwait, Libya, Malaysia, Mexico, Nigeria, Oman, Qatar, Russia, Saudi Arabia, Sudan, Syria, United Arab Emirates, Venezuela, and Yemen. The astute reader would have noticed some overlap in states; Russia and Angola both have diamonds and petroleum, and they will be coded as such throughout the dissertation.

In examining the resource curse, scholars blithely dub a whole host of ills that a state may suffer from as a 'resource curse.' For the purposes of this work, relegating such complex phenomena under one umbrella term, without distinguishing dissimilarities between types of resources and their respective consequences (which tend to be infinite)

oversimplifies the intricacies of the resource curse and takes, in my humble opinion, a theoretical shortcut.[1] The resource curse has become a catchall phrase detailing any ill befalling a resource-rich state. It is no wonder then that the literature on this subject is so far-reaching; scholars are explaining different phenomena while relying on the same blanket term—resource curse. This heuristic approach to understanding how resources influence policymaking and outcomes leaves vital questions unanswered, while incentivizing analysts to gravitate toward the question of whether or not the resource curse exists at all.

On the one hand, resource rents have significantly destabilized governments. For instance, diamonds in Sierra Leone have enticed rebel groups to capture this resource and fund rebellious activity with revenues from blood diamonds. Rebels, namely the Revolutionary United Front (RUF) overran diamond mines and managed to smuggle this resource into neighboring Liberia through underground channels of smugglers, illicit buyers, and child soldiers. Yet, on the other hand, oil money can help keep incumbents in power, such as during the Arab Spring. Learning from the mistakes of its neighbors, the Saudi monarchy deployed trained loyal security forces and tapped into their political patronage networks, including the clerics, to quell potential rebellions (Gause 2011:6-8). Partially due to their oil wealth, Saudi Arabia was one of the few Arab states left relatively untouched by the Arab Spring protests[2] and was able to stave off much of these

[1] Some scholars (e.g., Barma et al 2012) offer three-pronged symptoms of the resource curse, but consider them to be three outcomes of the same overarching curse.

[2] Effectively, by remaining a rentier state, Saudi Arabia was capable of absorbing the costs from Arab Spring spillovers by quelling any disruption with oil money; yet, Riyadh must know that such a solution can only be temporary.

by issuing massive payouts to its citizenry to the tune of $130 billion for public work projects and increased salaries for government employees (Gause 2011:6).

With such divergence in processes and outcomes among resource curse states, can we really consider all of these maladies to be caused by the same curse? This dissertation seeks to fill some of those analytical gaps by suggesting that scholars may need a more theoretically vigorous model for explaining differences among resource curse states. For the purposes of this dissertation, the resource curse will not be considered a single monolith. Rather, this dissertation champions the *theory of resource curses*.

The potential implications of Sierra Leone's resource curse of illicit diamond smuggling are very different from those of Saudi Arabia's resource curse placing restrictions on women's abilities to drive. Many factors influence states to reach such drastically diverse outcomes, ranging from economic development to cultural differences. This dissertation adds another dimension to the literature, contending that the resources present in these states entice policymakers to create, erode, and influence state institutions, which, in turn, shape state behavior. Primarily, and contrary to much of the prevailing literature, this dissertation does not consider the resource curse to be one single phenomenon. Instead of lumping all ills befalling diamond- and petroleum-rich states into one resource curse bucket, this dissertation argues that scholars are observing different phenomena, tabulating resource curses into three broad categories: economic, political, and violent.

Before continuing to discuss differences among resource curse states and delving into the present work's correlations, it is incumbent to first define previous conceptions of the resource curse and how it influences state behavior. By defining scholarly

interpretations of the resource curse, we are able to 1) set parameters around the dissertation, 2) accentuate how different definitions of the resource curse influence academic attitudes toward analyzing this phenomenon, and 3) develop and ensconce the *theory of resource curses* by exposing gaps in extant literature.

Resource Curse Definitions

Up until recently, resource-rich states were just as poor and (un)democratic as resource-poor ones. Yet, since the 1970s, with the advent of globalization, when economists would have expected a boom among resource-rich states,[3] they noticed either similar or slower economic development as compared to resource-poor states (Ross 2012:63). Since then, a large literature in economics has asked how resources influence development and growth (e.g., van der Ploeg 2011; Wick & Bulte 2009). Instinctively, one may expect that possessing vast petroleum or diamond deposits would industrialize the economy and enrich communities. Ideally, states would be able to capture these resources, export them for profit, and reinvest those monies domestically. This is oftentimes not the case, with the opposite phenomenon occurring. Scholars have labeled this scenario the 'paradox of plenty,' but Richard Auty's pithy term, 'resource curse,' has been proven to stand the test of time.

Richard Auty first coined the term 'resource curse' in 1993 indicating "the adverse effects of a country's natural resource wealth on its economic, social, or political well-being" (Ross 2015:240; Auty 1993). Originally, academics studying this

[3] According to Ross (1999:297-298), in 1970, over 80% of the developing world's revenue came from the export of primary commodities. This number dropped precipitously to 34% by 1993, partially due to fast growth in manufacturing sectors in Latin America and Asia.

phenomenon focused on the economic impacts of the resource curse, where states with abundant natural resources tended to grow slower than others possessing fewer resources (e.g., Barma et al. 2012). Later, a more dangerous and subtle phenomenon was uncovered: the threat was not that resource-rich states grow at slower paces than their resource-poor counterparts, but that they grow at the *same* pace as their resource-deprived neighbors (Ross 2012).

The original understanding of the resource curse was defined in economic terms, such as Dutch Disease,[4] but the trend over the past several years has been to define the phenomenon in more political terms (Collier 2010b:1105). For scholars such as Paul Collier, defining the resource curse by analyzing the political machinations of the state allows them to create formal models to explain this phenomenon. Collier, for example, creates a model of the social value of resources and the quality of the political system that

[4] Dutch Disease is a possible side-effect of an oil boom and can occur when there is an upward swing in oil prices that creates an increase in money appreciation, spending, price of non-traded goods relative to traded goods, shifts in labor, and an account deficit (Frankel 2010:18). Dutch Disease occurs when states overdevelop their extraction industry, thereby marginalizing other potentially profitable trades. The sudden rise of the value of petroleum exports creates an appreciation of real exchange rates, rendering the export of other, non-tradable, products more expensive and less competitive in the market (Humphreys et al 2007:5). This is especially true when non-tradable products are labor-intensive, rather than capital-intensive (Ismail 2010:13). Even if prices remain high then the industry accounts for a disproportionate percentage of the workforce, GDP, and capital of the state (Frankel 2010:18). In the end, Dutch Disease becomes a plague when a boom in natural resource extraction causes a decline in the manufacturing and agriculture sectors of the economy (Ross 2012:48). Scholars largely agree on the existence of Dutch Disease and can anecdotally point to instances where this curse has plagued a state (e.g., gold wealth in 16th century Spain, the Australian gold rush in the 19th century, UK and Norway's currency appreciation during the 1970s and 1980s due to North Sea Oil exports, and Venezuela's oil exports cause economic downturns in the 2000s). Some scholars have even pointed to ransom monies from Somali pirates as a trigger for Dutch Disease in the failed state (Jablonski 2015). Others have noticed a variety of Dutch Disease prevalent with recipients of remittances from exiled groups (Acosta et al 2009).

plays out in a co-constitutive fashion: politics influences exploitation of resources, and resources influence politics (Collier 2010b:1106). Whereas Auty (2001a) denoted the resource curse as the *effects* of natural resource endowments, Collier modified the definition to mean the *politics* revolving around said resources.

Collier drives the definition of the resource curse from being an economic one to a more political anomaly. Yet, Michael Ross (2012) takes another route, narrowing the resource curse further to denote one type of resource: minerals. He does so because the resource curse does not seem to affect most agricultural products, though they may comprise a significant portion of earnings and exports for the state (Ross 2012:1). According to Ross, the renewability of agricultural products does not seem to influence state behavior in the same way non-renewable minerals sway institutional capacity.[5] The exception to this definition are goods that may be refined into what is considered 'contraband,' such as coca leaves in Colombia or poppy seeds in Afghanistan (Ross 2015:250). Analyses of other agricultural products have rendered inconclusive results. When evaluating coffee price shocks at the sub-national level in Colombia, Dube and Vargas (2013) saw a decrease in violence, likely due to an increase in the labor force for the now more profitable resource. These results were congruent with Dal Bó and Dal Bó (2011), discovering that exogenous shocks to an industry may increase or decrease violence contingent upon capital- or labor-intensive nature of the industry (Ross 2015:251). Conversely, in an analysis of the coffee boom in Costa Rica, Barboza and Cordero (2001) noticed the boom led to a relaxation rather than a strengthening of economic reforms. While coffee remains out of the scope of this dissertation, according

[5] Because a state can renew agricultural resources, the race to extract and sell the product in the world is more cyclical and not as pressing.

to the *theory of resource curses*, states with contraband resources, such as cocaine or opium, would experience distinct effects of a curse, fundamentally different from those states suffering a curse stemming from oil or diamond wealth.

Definitions of the resource curse may also be time-bound, determining how the volatility of oil prices influences state action. Mansoob Murshed, for instance, defined a 'winner's curse.' In this situation, states with large natural resource endowments may be blessed for a time but if commodity prices drop, they will be cursed later on (2001:113).

Institutional-minded scholars attack the resource curse from a widely different approach. Notable among these scholars is Victor Menaldo. According to Menaldo, a resource curse is the direct and joint result of both resources *and* bad institutions (Menaldo 2016:11). In this sense, Menaldo concurs with the common theme to all resource curse definitions—policy determines whether or not a resource curse occurs (Auty 2001b:315). Resources exist but are not agential. Since resources do not act in and of themselves, resource policy becomes the barometer by which scholars must analyze any curse, as resources can only (dis)incentivize agents to react to their presence. State-developed policies are the dimmer switch for the resource curse; they can dull the effects enough so that the state may prosper, or intensify them so much that a state experiences a resource curse. For example, Norway for a long time set aside petro-revenues to be invested at a later date. However, prudent governments need not reinvest all of their oil revenues; it was positioned to adopt this policy because "Norway has already invested a lot of money in Norway"[6] (Collier 2010a:113). Chile also implemented prudent fiscal

[6] So-called experts have asked Norway to speed up oil production. Norway's prime minister once remarked, "We don't want it. The point is to be sensible and careful" (Karl 1997:221).

policy, such that the Chilean government saves the majority of extra revenue from high copper prices. Consequently, if a price shock of ten percent occurs, then it would increase output by less than one percent creating a slight decrease in inflation (Medina & Soto 2007).

Scholars such as Terry Lynn Karl have a broader definition of what is considered a resource curse, oftentimes with resources playing an epiphenomenal role in the curse. Her central contention is that institutional incentives tend to frame decision-making processes—this framework holds the key to understanding state behavior (Karl 1997:xvi). For Karl, in developing states, it is "the interaction between this framework for decision-making and the leading export sector, *not* the properties of a commodity *per se*, that determines whether a particular product is a blessing or a curse" (Karl 1997:xvi, her italics).

The *theory of resource curses* challenges Karl's notion that the properties of the resources do not influence state behavior. While Karl makes a good point that frameworks of decision-making determine the extent of the curse, this dissertation argues that the resources themselves are capable of influencing these reproducing frameworks. Karl, along with many other scholars, considers resources only as important as the revenues they generate. This holds for high-value commodities, such as petroleum, where governments may potentially live off rents. However, this logic breaks down when analyzing other resources, such as diamonds, that do not generate enough rents to bring an entire state out of poverty but are lucrative enough to fund rebellions. The *theory of resource curses* also challenges Menaldo's resource-less resource curse, where institutions themselves are firstly responsible for economic development. Rather, this

dissertation's understanding of the resource curse stems from the qualities (both intrinsic, monetary, and social) of the resource and the rents they potentially generate. Non-agential resources shape preferences in decision-making, leading to different processes and outcomes among resource curse states.

Resource curse literature has recently become proliferated with case studies, analyses, examples, and counterexamples of states succumbing to this curse. This sudden flurry of research has produced thousands of manuscripts seeking to depict how resources and institutions may or may not lead to a curse. While the *theory of resource curses* seeks to answer a different question, it is necessary to conduct a thorough literature review before expanding upon the theory. *Chapter 2* examines current research in resource curse literature and points out where this dissertation is theoretically located.

Chapter 3 will develop the *theory of resource curses*, depicting where it fits in the extant literature and how it differs from most analyses of the resource curse. Primarily, the *theory of resource curses* expects different resources to lead to different curses. By analyzing pathways and outcomes for different resource curses, the theory seeks to triangulate how seemingly insignificant processes lead to drastically dissimilar results. These results will be compartmentalized into three types of curses: economic, political, and violent resource curses. From these curses, this dissertation postulates ten hypotheses to test the theory: four economic hypotheses, four political hypotheses, and two violent hypotheses. This dissertation, being an international relations work, will only test the political and violent resource curse hypotheses.

Chapter 4 will assess the first two hypotheses postulated by the *theory of resource curses*, finding that diamond- and petroleum-rich resource curse states suffer through

government-MNC strife differently. The qualitative analysis of Tanzania and Venezuela in *Chapter 4* finds that both states experience different types of strife between governments and MNCs. Tanzania largely falls victim to intermittent and sudden strife in relation to its diamonds while government-MNC strife in Venezuela tends to become protracted, internationalized, and contingent upon the price of petroleum. The second hypothesis tested in *Chapter 4* measures inequality by the determining the strength of the resource class in diamond- and petroleum-rich resource curse states. This hypothesis finds that, in terms of wealth, petroleum-rich resource curse states possess much stronger resource classes, than their diamond counterparts. Particularly in Russia, there was a *positive* relationship between the petroleum resource class and the top 10% and top 1% share of income, while the results show a *negative* relationship between these same variables for diamonds.

Chapter 5 analyzes the next two political resource curse hypotheses. The first hypothesis in this chapter finds that petroleum states possess stronger nationalized industries than diamond states. While not a characteristic of a political resource curse per se, nationalized industries point to a crossroads in resource extraction. With nationalized industries, governments have the option of wielding a very powerful political and economic weapon. While the findings from this hypothesis indicate that every petroleum state enjoys this capability, very few diamond states have this option open to them. To be clear, the threat here is not the nationalized industry itself; the threat is how it is used. In a vacuum, nationalized industries are neutral parties in the economy. Rather, this dissertation is interested in denoting which options are available to diamond- and petroleum-rich resource curse states. If a resource is not valuable enough to be

nationalized, then it holds that the host state will neither suffer from nationalized industry ills nor benefit from a well-governed nationalized extraction process. In this sense, this hypothesis measures the options that are available to petroleum states and comparably unavailable to diamond states, suggesting that petroleum states are likely to trickle along a different political path than diamond states, not because of their nationalized industry, but due to the resources they possess. The second hypothesis tested in *Chapter 5* measures the enforcement of property rights, finding that petroleum-rich resource curse states enjoy stronger property rights enforcements than diamond-rich states. However, the evidence is inconclusive in suggesting that petroleum-rich states enjoy these stronger enforcements *because* of their resource. Given the results, it is possible that petroleum-rich states experience stronger property rights enforcements because they tend to be wealthier than diamond states.

Chapter 6 examines how resources may impact violent conflict in diamond- and petroleum-rich states. The first hypothesis in this chapter predicts that despite petroleum's comparative abundance and wealth, rebels will seek to capture diamond mines before turning to oil fields. Interestingly enough, the results from this hypothesis suggest that rebels are even less likely to sabotage oil fields or pipelines, despite the fact that the petroleum running through this infrastructure funds their opponents. In a qualitative analysis of three civil wars in Africa occurring throughout mostly the same period (Algeria, Angola, and Sierra Leone), this hypothesis finds that diamonds intrigued rebel activity much more than petroleum, even when opportunities to sabotage oil fields or pipelines were available. The last hypothesis of this dissertation seeks to decouple the types of violence resource curse states tend to experience. The subsequent results depict

that petroleum-rich states were the only resource curse states to experience international violence, while civil violence was prevalent throughout all resource curse states in this analysis. The bivariate regressions also indicate a strong positive correlation between diamond production and civil violence. Furthermore, an analysis of the Iran-Iraq War demonstrated that petroleum played direct and indirect roles in the conflict, further supporting this hypothesis.

The last chapter of this dissertation offers some policy recommendations and conclusions. Given the spirit of this dissertation, the recommendations are different for diamond- and petroleum-rich states. Many recommendations for diamond states reference stronger institutions for artisanal diamond mining, not only their legality and infrastructure, but also the property rights associated with this type of enterprise. Due to the comparative wealth of petroleum, the most notable policy recommendation for petro-states is to ensure that oil rents do not only flow to one governmental body. Rather, the current work recommends redirecting petro-rents to provincial and local governments—as well as federal bodies—to disincentive centralized governments from using their nationalized oil industries for political reasons.

The next chapter will engage with resource curse literature, showing how it has evolved, where gaps still exist, and where theoretical concepts postulated in this dissertation fit into the works of other scholars.

Chapter 2

LITERATURE REVIEW

Before analyzing where the *theory of resource curses* fits in the literature, it is important to note that there is no consensus among scholars as to whether 1) the resource curse exists, or 2) resources, as opposed to other factors, are the cause of a curse. Mixed messages debating ontological arguments for the resource curse accounts for the vast majority of the literature. Some scholars believe that, in the words of Paul Collier, "the resource curse is real and severe" (2010b:1105), while there are others, who, while analyzing the same data, consider the resource curse to be a red herring (e.g., van der Ploeg & Poelhekke 2010) or else caused by poor institutions (Menaldo 2016). Much of the resource curse literature dates back to Mahdavy's (1970) postulation that petroleum-related rents allowed governments to tax their populations less, rendering them unaccountable to their constituencies and oftentimes delaying advances to civil society. This has led to a contentious scholarly dichotomy on the roots of economic and political underdevelopment in states with natural resource wealth—are resources or institutions the culprit? The *theory of resource curses*, while respectful of institution-minded analyses, considers resources salient factors in economic, political, and social (under)development. Yet, there are certain gaps in the literature that, if exploited, may lead analysts to a deeper understanding of how resources influence policymaking and outcomes.

Ontological debates on the resource curse capture the majority of scholarly attention. In the same way King Midas befell to greed when presented with the option of

immense wealth, scholars consider a similar phenomenon to occur at the state level, understanding resource wealth to be an intervening variable influencing decision-making and policy outcomes. This influence may be positive as in the case of Norway's vibrant economy,[7] or negative as in Liberia's bloody civil wars. Michael Ross, a giant among resource curse scholars, singles out petroleum as a salient factor in hindering economic development, political stability, and women's rights (Ross 2012). Ross notes that since 1980, the world has become richer, safer, and more democratic, but not among states with disproportionate endowments of petroleum. In the first paragraph of *The Oil Curse*, Ross states that before 1980 "there was little evidence of a resource curse" (Ross 2012:1), but, according to Morrison, he never says why this is the case (2013:1119). Victor Menaldo (2016) may have an answer, postulating that poor institutions, rather than resources, provoke economic underdevelopment. As previously mentioned, for Menaldo, weak states *and* bad institutions determine whether or not a state experiences a resource curse (2016:11). Resources do not causally lead to economic underdevelopment, bad institutions do (Menaldo 2016:22). As if to further cement his point, Menaldo quips that for all intents and purposes, "an oil-poor Kuwait would be as equally authoritarian as its oil-rich doppelganger" (2016:64).

Historicist outlooks take more agnostic approaches to the existence of the resource curse. For historicist scholar, Timothy Mitchell, most analysts who write about the resource curse have little to say on the resources themselves, but rather place undue focus on the revenues they generate (2013:1). From this perspective, Mitchell captures a different element of the resource curse. Whereas coal had a democratizing effect on states

[7] In 1900, Norway was Europe's poorest state, but is now one of the richest, partially because of oil production and exports (Mehlum et al 2006:2).

due to the capacity of miners waging strikes and bottlenecking energy supply, the political economy of oil is quite different. Unlike in coalmines, where workers were able to unionize and were forced to work together (indeed, their lives depended on it), petroleum extraction and refining is capital-intensive, with workers spread out over the entire world. So, according to Mitchell (2013) for the same reason coal can democratize, the oil industry does not. By adopting this historicist outlook, Mitchell provides an alternative explanation for understanding authoritarian-petroleum correlations in developing states and the former developed world.

In examining the resource curse, analysts tend to single out unique determinants, such as those resource rents that Mitchell (2013) sidelines, which influence state behavior and politico-economic outcomes. Resource rents, especially those generated from petroleum, tend to be huge, and for this reason, receive the lion's share of scholarly attention, especially if the state has nationalized its extraction industry. *Hypothesis 3* will measure the strength of nationalized industries among diamond- and petroleum-rich states. Barma et al (2012) detail how, due to their disproportionality, rents themselves become a sort of political currency (2012:47), hence the term 'rentier' state,[8] and end up playing an outsized role in the political economy of the state. Oil yields "government revenues that are unusually large, do not come from taxation, are extremely volatile, and can easily be concealed from public scrutiny" (Barma et al 2012:48). Ross (2012) also takes issue with this secrecy revolving around petro-rents. In essence, oil leads to

[8] A rentier state is one deriving the majority of its income from the export of natural resources. Due to the immense wealth acquired from petro-revenue, rentier states often delay advances to civil society and democratization because they can afford to provide numerous benefits to their population without taxation (Schwarz 2004:5). This lack of taxation, social contract theory tells us, erodes the relationship of accountability between the state and its citizens (Moss 2011:4; Bräutigam 2008).

corruption in developing states because revenues are uncommonly large, unstable, and can be easily hidden. Menaldo concurs, maintaining that because oil rents generate more revenue than any other activity, tyrants can afford to tax their population less, and once they do not have to tax their people, they are free from asking them for their consent and input in the decision-making process (2016:3). Further cementing these postulations, Gylfason (2001) finds support for the uniqueness of oil rents. When examining OPEC states, Karl (1997:3) noted that on average their GDP *decreased* by 1.3% annually from 1965 to 1998, despite oil booms during this time period and government revenues jumping eleven-fold from 1970 to 1974. Additionally, Vicente (2007) studied the differences between São Tomé and Príncipe and Cape Verde. Both of these island microstates are small archipelagos off the coast of Africa with a similar Portuguese colonial history. However, when São Tomé and Príncipe discovered petroleum and later experienced an oil boom, Vicente (2007) found an increase in corruption (and perceived corruption) ranging from 21-38% on their subjective scale in comparison to Cape Verde, which experienced no such oil shock.

Rents remain the most powerful monetary tool for maintaining political power. Extractive economies can become more stable if they reinvest those earnings into a diversified economy that includes human capital (Hamilton 2001:46). However, if poorly executed, rents may accumulate in the government's hands or in those of favored businesses, leading to more inequality and slower growth, with Dutch Disease creeping into the economic system (Birdsall et al 2001:57). This dissertation's second hypothesis focuses on how diamonds and petroleum may lead to different levels of inequality in national economies. Political pressures deriving from rents may compel states to act in

paternalistic manners, as in Saudi Arabia (Auty 2001b). Such practices may lead to more corruption and embezzlement (Collier 2010a:52; Ross 2012), and relax constraints to growth (Di John 2011:167). Ironically, in Venezuela, due to the petrolization of social services, finance ministers found that their most valued excuse '*no hay dinero*' (there is no money) falls apart during oil booms (Karl 1997:160, quoting Venezuelan Finance Minister Héctor Hurtado). *Hypothesis 1* of this work seeks to address an aspect of this relationship, specifically strife between governments and multinational corporations.

Mehlum, Moene, and Torvik (2006) understand resource rents to be processed through institutional machinations determining either productive activities generating linkages and profits or unproductive grabbers eroding institutional capabilities. Conversely, analysts have noted that resource rents may be moderated through the political power balance. Bjorvatn et al (2012) illustrate how, with a "strong government, resource wealth can generate growth even in an environment of poorly developed institutions, while adding oil revenues to a weak government may have damaging effects on the economy" (2012:1308). Basedau and Lay (2009) note how states with massive petro-wealth do not experience a curse at all, due to political power and a 'rentier peace' purchased by oil rents. In these cases—and from a Foucauldian perspective—rents fuel massive state-making machines (Watts 2004:73).

Findings also vary among scholars who ask if resources legitimize authoritarian regimes. Cuaresma et al (2010), analyzing a dataset of 106 dictatorships, find that petro-wealth prolongs authoritarian regimes. Andersen and Aslaksen (2013) expand this analysis to include over six hundred political regimes, though not all authoritarian, finding similar results. When only looking at African states, Omgba (2009) noticed that

oil, but no other natural resource, helped incumbents remain in office. While petroleum may allow for authoritarian regimes to persist, apparently, they also help legitimize democracies (Smith 2004). Only Venezuela, which went from being authoritarian to a democracy at the height of its oil wealth, remains a salient anomaly to this logic (Karl 1997). Conversely, Caselli and Tesei (2016) document the exact opposite phenomenon, finding that oil windfalls strengthen autocrats yet have little influence on democratic regimes.

When analyzing petroleum, scholars are seeking to identify causal linkages between production and curse. Yet, these causal linkages are muddied by the likelihood of both democracy and petro-revenues being endogenous to the process of industrialization in a state (Brooks & Kurtz 2016:279). Further complicating this is that scholars seek to infer causality when correlation is produced using a method that exploits cross-country variance (Haber & Menaldo 2011:2). Many of these analyses are also static and time-bound, thereby not allowing consideration for the resource curse to be considered as an evolving process. Haber and Menaldo seek to change this by adopting a time-series method that constructs original country-year time series whose history extends back to before they became reliant on petroleum. By measuring the *Polity* score[9] against oil income per capita and fiscal reliance on resources, they believe that they can measure whether or not there is a correlation between policymaking and resource production. Contrary to the deductions of resource curse believers, Haber and Menaldo (2011), after running many regressions, conclude that oil and mineral reliance "does not

[9] This is data taken from Marshall and Jaggers (2008) that includes "an index of the competitiveness of political participation, the openness and competitiveness of executive recruitment, and the constraints on the chief executive that is coded for every country in the world" (Haber & Menaldo 2011:4).

promote dictatorship over the long run. If anything, the opposite is true" (2011:25). In the end, their analysis is unable to reject the null hypothesis, with their regressions not producing any findings suggesting that the resource curse is real (Haber & Menaldo 2011:25). Brooks and Kurtz take advantage of the data and method provided in Haber and Menaldo's article (2011) to adopt a mixed-methods approach in analyzing the resource curse. Their findings agree with Haber and Menaldo (2011), illustrating that oil itself is not a curse, and that it can actually contribute to democratization, as was the case of Venezuela in the 1970s.

Resource curse outcomes may stem from faulty governmental policies, but there are other political outcomes that have been linked to the resource curse. For instance Collier and Hoeffler (1998) found a strong and positive relationship between lootable resources and violent conflict. Yet in their case study of Ghana, Snyder and Bhavnani (2005) detail how lootable resources may not escape the capture of governments or lead to a resource curse, claiming that "alluvial diamonds are actually more likely to be associated with peace than war" (2005:564). In an astute analysis of violence in Sierra Leone, Voors et al (2017) succinctly depict the mixed signals from scholars on whether or not resources causally lead to more violent conflict. Brückner and Ciccone (2010) find that downturns in commodity prices precede violent outbreaks. Bazzi and Blattman (2013) also concur, finding little evidence that price spikes trigger violent conflict, arguing, "higher commodity prices are associated with an increased likelihood of the cessation of violence" (Voors et al 2017:280). However, once one delves into specific case studies, the results tend to be different from the cross-country analysis depicted above. Cases in Colombia (Angrist & Kugler 2008; Dube & Vargas 2013), Sierra Leone

(Bellows & Miguel 2009; Humphreys & Weinstein 2008), and Sudan (Olsson & Fors 2004) tend to be at odds with the hypotheses espoused above.

Le Billon (2001) demonstrates how differences between *scarce resource wars* and *abundant resource wars* fail to account for the social constructions surrounding the resources (2001:565). In accounting for geographic location, concentration, and fragmentation, and peripheralization of resources, Le Billon (2001) develops a typology of resource-linked armed conflicts. But, as Ross (2015) notes, several studies, including Le Billon's, have attempted to "explain why different resources seem to have different political consequences, but no explanation has been subject to careful testing" (Ross 2015:242). To a certain extent, this dissertation seeks to fill the gap that Ross (2015) is referring to, teasing out process and outcome differences between diamond- and petroleum-related curses rooted in their resource capabilities. Similar to Le Billon (2001), the present work not only analyzes the physical characteristics of resources, but also their social and societal implications.

Lujala (2010) expands upon Le Billon's (2001) analysis, accounting for the location of petroleum in determining the extent of the resource curse. In her research on onshore and offshore petroleum, she notices how offshore deposits have no connection to violence or conflict in the mainland. Yet, when onshore petroleum is discovered, conflicts tend to increase and become more prolonged. This is even true whether or not the resource is extracted! Simply having the resource present is enough to incite violence among local groups. Even if capturing the state is unrealistic, access to natural resources makes rebellions more enticing (Collier 2010b:1111). *Hypothesis 5* seeks to develop this

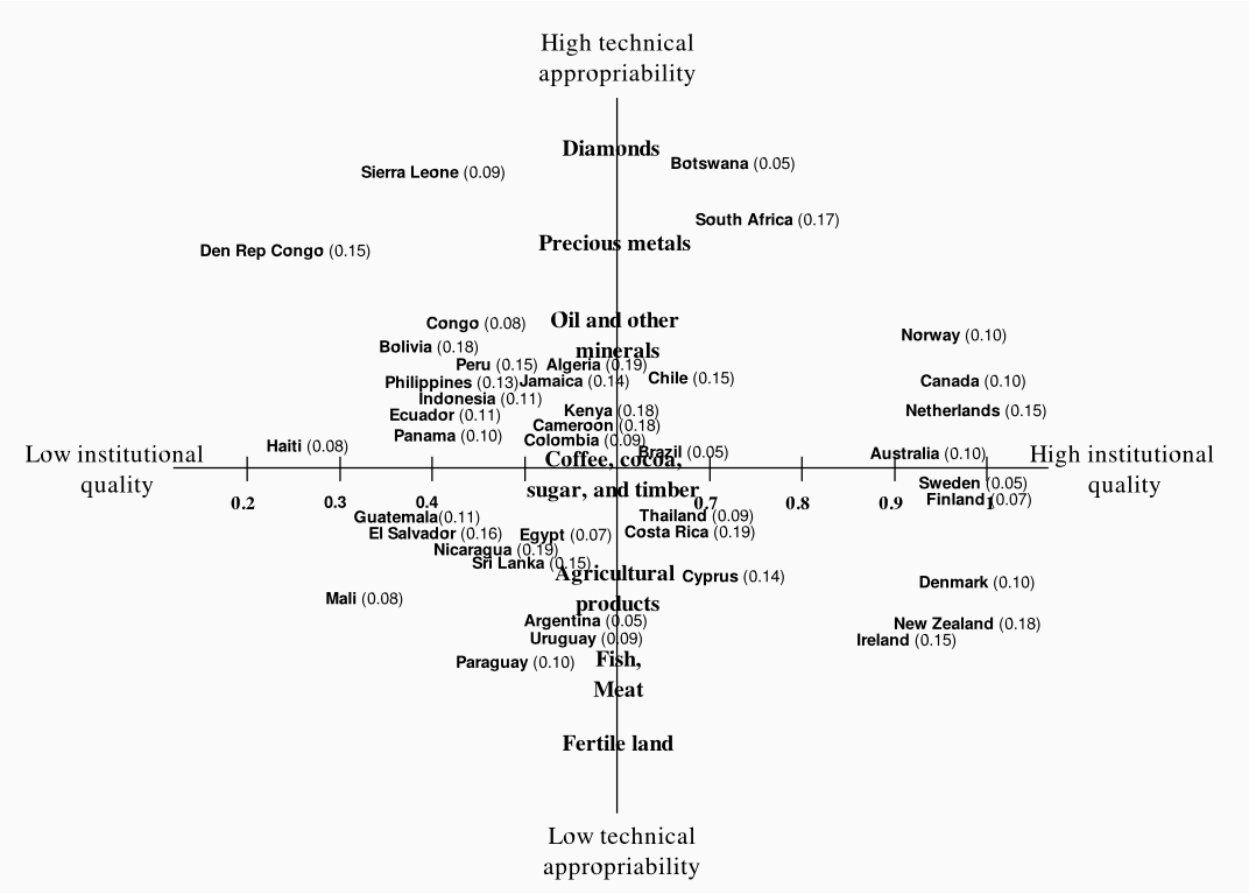
train of thought more, seeking to illustrate how rebels choose to sack lootable diamond mines over oil fields despite the latter's comparatively larger economic benefits.

The reality of potential rebellions has led analysts to determine how the lootability of resources influences agential forces in resource curse states. According to Snyder and Bhavnani (2005:565), lootable resources are those high-value resources with few barriers to entry, such as alluvial diamonds. Conversely, non-lootable resources are those with higher barriers to entry, including petroleum and kimberlite diamonds (Snyder and Bhavnani 2005:568). They base their analysis on recent studies of contemporary civil wars, pointing to a positive relationship between lootable resources and violence (Collier & Hoeffler 1998; Keen 1998; de Soysa 2000). Along this vein, Ross (2003:12) postulated that the more non-lootable a resource is, the more likely it will lead to separatist conflicts. He also postulates its logical corollary: the more lootable a resource is, the more it will benefit rebels, while the more non-lootable a resource is, the more it will benefit the government (Ross 2003:13). This dissertation's sixth hypothesis seeks to expand upon the predictions Ross (2003) makes, seeking to decouple differences between civil and international violence among diamond- and petroleum-rich resource curse states. Related to the lootability of resources is how they are screened through the state's institutional capacity. States with stronger institutions are less likely to suffer from diamonds being smuggled across borders, whereas those with weaker institutions may not only suffer from these consequences, but may also experience violence due to the diamond smuggling.

Boschini et al (2007) depict how resources may either be good or bad for an economy, but this is contingent upon how resources are filtered through a state's

institutions. These scholars believe some resources are more likely to cause problems, either due to their economic or technical challenges, or because they may induce rent-seeking behavior or trigger violent conflict. For Boschini et al (2007) states are only cursed if they have poor institutions, such as in Sierra Leone or Venezuela, but these curses turn into blessings if states enjoy powerful institutions, as in Norway or Canada. The combination of the type of resources with the quality of institutions is what these authors label as the *appropriability* of the resource curse, capturing the likelihood that resources may lead to rent-seeking behavior, corruption, and conflict. Similar to Mitchell (2013), they expand upon how unique characteristics of resources may create different environments at the state level. For example, they note in the working paper for their future article how resources that "are very valuable, can be stored, are easily transported (or smuggled), and are easily sold are, for obvious reasons, more attractive to anyone interested in short-term illegitimate gains" (Boschini 2005:3), suggesting that diamonds are more likely to lead to conflict. Borrowing heavily from Acemoglu et al (2002), who argues that the initial conditions shaped by colonialism favor certain institutional arrangements over others (e.g., extractive industries), Boschini et al (2007) emphasize the filtering of resources through matrices of institutions. According to their hypothesis, there are two dimensions of the resource curse, appropriability and institutional quality. Below is their graph detailing how the intrinsic qualities of resources interact with the qualities of institutions.

Figure 1: Two Dimensions of Resource Appropriability (Boschini et al 2007:4).



Boschini et al (2007) superimposed their graph with resources and states, denoting where resource successes tend to occur (right side of the graph, next to high institutional quality) and where resource failures occur (left side, by low institutional quality). On the *y*-axis, we note how different resources, such as coffee, fish, and precious metals, have different technical appropriabilities, indicating the level of expertise required to successfully extract value from these resources. Certain resources, such as meat, require low levels of technical appropriability, while others, such as diamonds, require higher levels of resource appropriability. In Boschini et al's (2007:4) words:

> The potential problem of having technically appropriable resources can be countered by good institutions, implying that the impact of resource abundance on economic performance is predicted to be non-monotonic in institutional quality. Resources such as diamonds, precious metals or oil are expected to be negative for economic performance only in countries where measures of institutional qualities are low, while they will have a positive impact on the economy of countries with good institutions. As resources become less technically appropriable, the relative importance of institutions is predicted to be less decisive (Boschini et al 2007:4).

The scope of this dissertation can be ensconced in the upper part of Boschini et al's (2007) graph, focusing on the interaction between resources and institutions *vis-à-vis* diamonds and petroleum. As Boschini et al (2007) notes, this is where the resource curse is more likely to occur, as fertile land and fish largely do not contribute to any curse. While this dissertation is greatly influenced by their work, it parts with Boschini et al's (2007) thought on certain key elements: first, while they agree that different resources may produce different outcomes, Boschini et al (2007) always pin outcomes back to economic dysfunction. For example, whereas they believe diamonds are more likely to cause violent conflict, they only measure how this conflict may deter economic growth, sidelining other blowbacks from violence in resource curse states, such as child soldiers, mass rape, or broader political destabilization. This dissertation is interested in closing part of this gap by accounting for a violent resource curse, which should not be measured in terms of economic dysfunction. In this sense, the *theory of resource curses* adds to the extant literature by defining other dimensions diamond- and petroleum-rich states are susceptible to experience.

Second, Boschini et al (2007) draw upon Robinson et al (2002) and Mehlum et al (2002) in assuming resources to be non-monotonic in institutional quality. This non-monotonicity effectively insinuates that resources have the potential to influence

institutional behavior, making good ones better while rendering bad institutions worse. The *theory of resource curses* parts from this thought in that institutions do not simply become 'better or worse.' Rather, they are profoundly altered in diamond- and petroleum-rich states—to the point that we may consider these states to have completely different curses. For example, a nationalized industry is not automatically better or worse than a liberalized market-based industry, but it is fundamentally different. When analyzing only resource curse states, poor institutional quality is assumed; the dilemma is how they differ from each other. Boschini et al (2005) hypothesize that "more appropriable resources are more problematic, unless a country has sufficiently good institutions" (2005:16). This may be true, but instead of following the pathways that lead to different institutions, Boschini et al (2007) simply label institutions as either good or bad. The *theory of resource curses* seeks to fill part of this gap in the literature by exposing how different pathways, though initially small, may lead to drastically different outcomes in diamond- and petroleum-rich states. However, congruent with the scholarship of Boschini et al (2007), the *theory of resource curses* assumes resources are filtered through institutions in a non-monotonic fashion, ultimately leading to different outcomes contingent upon the resource. This non-monotonicity may manifest itself in an economic, political, or violent form. As part of this, the reader will note how this dissertation differs from current trends in international relations research that assume the social construction of institutions and policymaking.

Third, Boschini et al's (2007) placement of states in their graph denotes the share of primary exports as it relates to GDP. This dissertation considers exports necessary for economic growth, but will largely focus on resource production, rather than exports, in

order to not oversample states consuming few of their own resources. For example, though Qatar produces an extraordinary amount of petroleum for its size, the Qatari people consume much of their own resource, thereby leaving less petroleum to be exported. This is not the case for Yemen, which consumes a smaller percentage of the oil it produces.

Finally, Boschini et al (2007), similar to many other scholars, seek to answer why certain states fall into a resource curse trap while others do not. This dissertation is more attuned to determining differences in curses rather than pointing out which states experience a curse. In this sense, ontological questions of the existence of the resource curse remain exogenous to the present study.

Resource curse literature is not only vast and growing; it is also remarkably inconclusive and inconsistent. For every time scholars point to a catastrophic failure due to resources, they can also note incredible successes. Despite this bleak outlook on the future of resource curse scholarship, there are certain avenues for future research. With the notable exception of Mitchell (2013), scholars are much more interested in processes and machinations of institutions once they receive resource rents rather than the complex formulaic structures and conjunctive processes before rents are collected. These processes are governed by the challenges posed by intrinsic and social qualities endemic to the resources. The next chapter details a comparative analysis highlighting how different resources causally shape policymakers' preferences and structure institutional patterns, both of which influence outcomes. It is in this theoretical space that the *theory of resource curses* is most explanatory.

Chapter 3

A THEORY OF RESOURCE CURSES

As discerned from the literature review, there is no consensus on whether or not the resource curse exists or which variables exacerbate or enhance economic development or violent conflict. Scholars tend to agree that some resource-rich states experience political and economic dysfunction, but disagree on whether or not they are caused by resources *per se*. Some analysts offer compelling evidence that the curse is a statistical artifact created by endogenous variables within quantitative datasets. Others are more interested in export-related datasets, arguing export-based economies are better positioned to spur domestic economic growth sidelining how resource production alters local economies. Common to most resource curse studies is the comparison between resource curse states and non-resource curse states. In an effort to find patterns among resource-rich states, academics have sought to compare cursed states to blessed states. While such analyses are important to enrich academic understanding of the resource curse *vis-à-vis* ontological arguments, this work seeks to answer a different question: do resource curse states suffer from different curses? The *theory of resource curses* seeks to answer this question and fill in this theoretical gap in the literature, arguing that different resources lead to different curses.

This work contends that if analysts are to study the resource curse and how it influences state behavior, writings ought to pit resources against each other to determine their influence over state institutions and divergences in outcomes. Only from this perspective, and not from measuring cursed states against blessed states, can analysts

flesh out patterned variances among diamond- and petroleum-rich states and how they react to the presence of resources. To be sure, institutions matter; but they are influenced by the resources that fuel them. For this reason, this work considers resource curses to manifest themselves differently in each state. For example, this work's third hypothesis seeks to measure the strength of nationalized industries in diamond and petroleum resource curse states. If the resource curse exists, and this dissertation assumes that it does for certain states, then the main theoretical point becomes whether or not states suffer from the resource curse in different manners. And if states ride on different pathways leading to curses, then we ought to argue differences among resource curses, and not assume that there is a singular curse for all states.

The *theory of resource curses* contends that the type of resource influences state behavior (e.g., policymaking, economic institutions, government actions and culture, etc.) not only because of the rents they generate, but also because of the intrinsic and social qualities they embody. In this sense, resources are agentless organizing forces incentivizing and restricting states to act in peculiar (and oftentimes suicidal) manners. To a great extent, the presence of resources constricts host states, as resource-rich states are hardly motivated to leave their resources in the ground. Resources may be agentless units, but dissimilarities among resource curse states are contingent upon how states interact with those resources. The *theory of resource curses* asserts that states would react differently to diamonds than to petroleum.

Barring discoveries of new deposits, resources themselves are static; they can be extracted today or tomorrow and are generally unchanged. The intervening variable is institutional reactions to the presence of resources; this factor is always in flux, as

resources do not compel states to act in specific ways *once*, but continuously do so over time. Furthermore, the prices of resources change (e.g., oil shocks), implying that governmental responses to these shocks are paramount in determining whether or not states experience a curse. The presence of resources may be agentless and static, but state reactions to them are not. Accordingly, scholars should analyze the specific pathways guiding states from the discovery of resources to how governments use the rents they may generate. From these pathways, academics may peek into state actions and determine how possessing different resources may lead a state to become drastically different from others enjoying different resources. The *theory of resource curses* postulates that behind the bright, blooming, and buzzing intricacies between resource curse states, there is a simple reason as to why they experience this curse in such drastically distinctive fashions: different resources lead to different resource curses. As observed in the previous chapter, scholars sometimes account for various resources in their analyses, however, as Ross (2015:242) noted, not in a systematic or testable fashion analyzing differences between resources. In filling this theoretical gap, this dissertation forwards the postulation of different resource curses.

A vital aspect of this dissertation is to qualify the *theory of resource curses*, first by offering a conditional hypothesis limiting the theory only to 'cursed' states. States may not experience the resource curse due to numerous reasons—all of which are still debated by scholars—ranging from strong institutions,[10] prudent trade practices,[11]

[10] Strong institutions allow states to diversify their economy away from the non-renewable resource, stimulating agricultural and manufacturing sectors along with the extraction industry. Connections and linkages between numerous economic sectors allow industrialized states to not experience a large-scale resource curse at the economic level in the same way institution-poor states are more susceptible to this curse. States such as

powerful negotiating capabilities,[12] or resource reinvestment in local communities.[13] Instead, this dissertation will compare and contrast resource curses against each other, rather than comparing them against successful states. It is well known that successful states manage to direct their resources toward profitable practices, enjoy strong institutional frameworks, and do not suffer from constant rebellions. Comparing resource curse states to developed states, such as OECD member states, may be akin to comparing apples to oranges. Although analysts strive to determine why some states succumb to the resource curse while others thrive, the present work is dedicated to disentangling how states experience different curses, potentially better isolating specific qualities leading to suboptimal results.

This dissertation seeks to tease out differences between resource curse states to better predict which curses may afflict states, offer preventive measures, and create pathways *out* of the resource curse. By analyzing the pathways leading to different curses, analysts may be able to track the opposite phenomenon as well; if scholars can

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Norway and Canada enjoy strong institutions without experiencing a *bona fide* resource curse partially due to their diversified economy.

[11] Resource-rich states are often encouraged by practitioners to implement export controls. In an analysis of rice markets, Frankel expands upon this notion, stating, "capped exports from the exporting countries and price controls in the importing countries both work to exacerbate the magnitude of the upswing of the price for the (artificially reduced) quantity that is still internationally traded. If the producing and consuming countries in the rice market could cooperatively agree to *refrain* from government intervention, volatility would probably be lower, not higher." (2010:23)

[12] Frankel also suggests resource-rich states should hedge the market by selling petroleum at the future price instead of selling petroleum at the 'spot' price, which requires negotiation (2010:25).

[13] Resource curse scholars, such as Michael Ross, suggest abiding by the Hartwick Rule where states that rely on non-renewables reinvest a portion of their revenues back into the community in productive and diversifiable endeavors (Ross 2012:206).

observe the way *in* to the resource curse, they may be able to find an escape route *out* of the resource curse as well. The last chapter of this dissertation offers some policy recommendations to this end, based off the tested hypotheses. Once root causes of resource curses are properly defined, potentially unique for every state, then policymakers have a roadmap future progress. As this dissertation will illustrate, resource curse states suffer from this malady in various ways, and comparing these states to curse-free states is a moot point. Since the resource curse is unique to each state, only by comparing them to similar states, can scholars find patterned differences among processes and outcomes, and become better positioned to provide policy changes for states.

This dissertation values the work of previous scholars seeking to uncover why the resource curse exists; however, that is not the question this project is answering. This dissertation does not ignore the hard work of previous scholars—quite the contrary. This work is ensconced in current resource curse literature considering the existence of this phenomenon to be real and severe. Possessing vast amounts of resources invites the *potential* for a resource curse, but does not causally necessitate one. Scholars know this, but what interests the *theory of resource curses* is the variation in how these resources have shaped state structures and institutions, effectively leading to completely different curses. Institution-minded scholars point to institutions as catalysts for economic development and political stability. They further note how institutions may become deformed or malfunction due to a state's resources, leading to greater inequality, a concept *Hypothesis 2* will tackle. They seem to be correct; institutions clearly are very important facets of state-behavior. Nonetheless, this theory contends that the state's

resources may underpin those institutions and their continued (mal)functioning. Institutions are important but so are resources.

The *theory of resource curses* considers two distinct aspects of resources: their inherent qualities and the revenues they generate. Specific qualities unique to both diamonds and petroleum influence policymakers' preferences, shape agendas, and act as filters for potential resource curse outcomes, but do so in different manners. These pathways, in turn, determine *how* a state experiences a resource curse. To be sure, enough violence becomes a political problem, which might trigger an economic downturn; economic hardships may also incite violence and pose political obstacles; and political corruption influences FDI investment into the economy, which could spur internal violence and rebellions. Once a state begins to experience a resource curse, the causal arrows flow in every direction. Yet, some states are more prone to international violence; others must contend with systematic government corruption; and some face economic underdevelopment.

By pinpointing the type of resource curse a state suffers from—be it economic, political, or violent—and tracking pathways from resource discovery to revenues they generate, then future scholarship would be better equipped to understand root causes of different resource curses. As mentioned in the introduction, where this theory deviates from current literature is that the resource curse is not the singular outcome scholars assume it to be; rather, the typology of three types of curses—economic, political, and violent—distinguishes differences among resource curse states. The theory is simple: different resources lead to different resource curses.

An abstract model[14] is useful in illustrating the *theory of resource curses*. In the same way an airplane enthusiast designs a model airplane, below we will create two models—for diamonds and petroleum—of the theory or resource curses. Similar to the airplane, a model of resource curses must include certain prominent features that are typical for states plagued by these curses. The opposite of this is also unfortunately true: instead of incorporating more and more factors that only marginally make the model work better, up to the point that we end up re-creating reality in a futile attempt to explain it,[15] the model must purposefully ignore some features of resource curses, though they may prove useful for other types of studies. Since models are supposed to represent reality without duplicating it, model-makers ought to determine which are the most peculiar characteristics of an airplane that distinguish them from other objects, and replicate them at a miniature level—hence the (perhaps undue) focus on parsimony. By this logic, as Kenneth Waltz (1979) repeatedly reminds us, the power of the theory is contingent upon its utility.

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[14] In determining what an abstract model actually consists of, the model airplane is a useful analogy. The goal of making a model airplane is to mimic certain distinguishable aspects of a real airplane, fully cognizant that the model is not supposed to operate as a *bona fide* airplane (e.g., it doesn't fly, it fits in a drawer, etc.). Though it is understood that the model airplane is not functional or useful in transporting people, it still possesses certain features, such as wings and a fuselage, which distinguishes it from other objects. The model is a simplification of reality. Therefore, if someone creates a model that can fly and carry people, it has stopped being a model and has become a fully-fledged airplane. In this sense, the flowcharts below do not seek to replicate reality, but rather to "construct *a* reality, but no one can ever say that it is *the* reality" (Jackson 2016a:124).

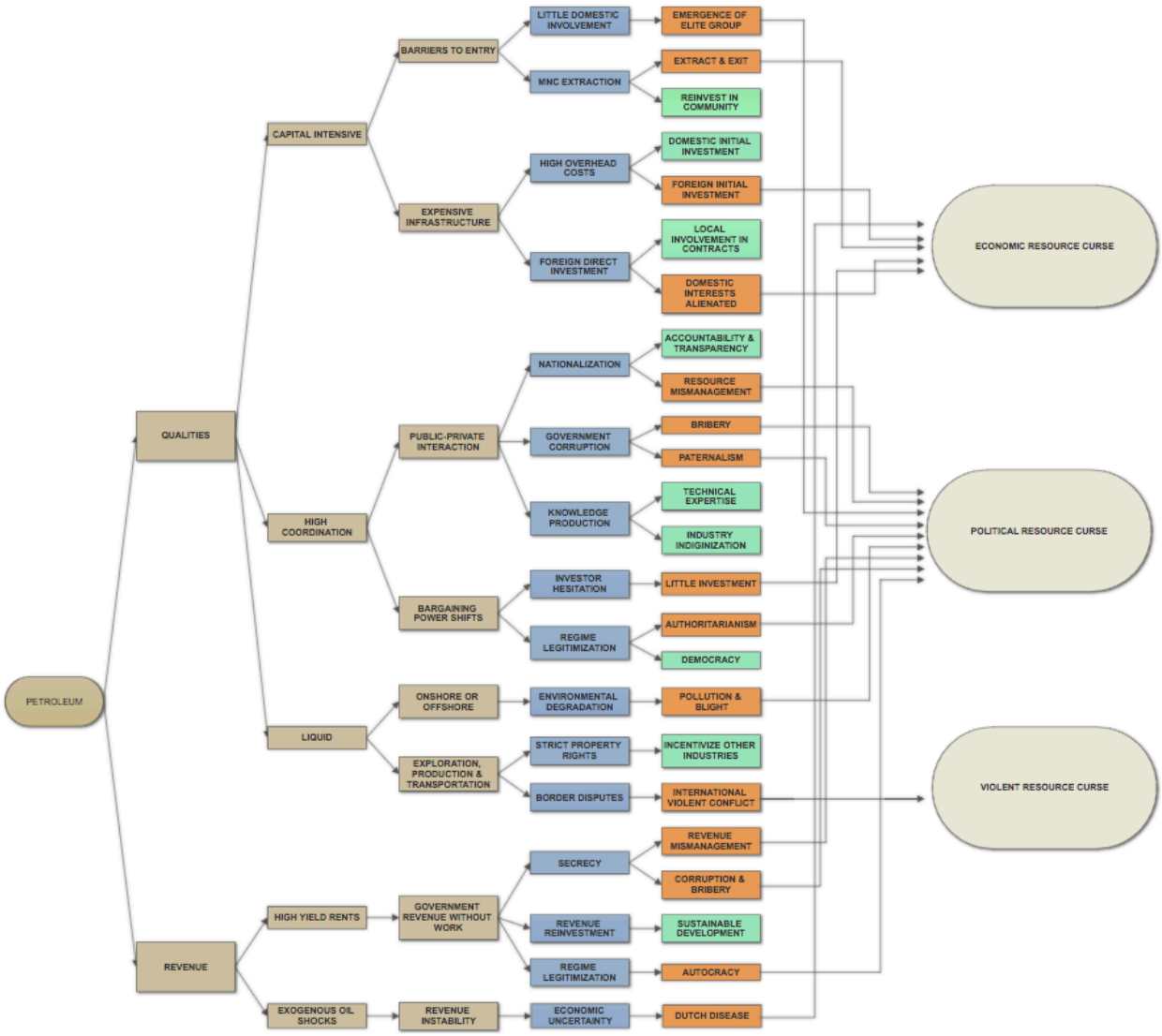
[15] The transcendental thought of Jorge Luis Borges proves useful in elucidating upon this point. In *El Hacedor*, Borges wrote a satirical short story, 'Del rigor en las ciencias' (On the rigor of science), regarding a similar dilemma where fictional cartographers sought to map out an empire with exact precision. In their haste to recreate reality as precisely as possible, the cartographers' map ended up becoming as large as the empire itself, rendering it completely useless, and eventually being discarded in a far-away desert.

It is precisely the very unrealism of a model that renders it useful. James Rogers (2006) expands on this notion, illustrating his point by depicting the difference between a map of a city and a city block itself. It is clear that the topological differences between the two are extreme, yet it is the purposeful simplification of a map that makes it useful, though it blatantly distorts reality. Rodgers expands on this concept:

> The map utterly distorts what is *really* there and leaves out numerous details about what a particular area looks like. But it is precisely *because* the map distorts reality—because it abstracts away from a host of details about what is really there—that it is a useful tool. A map that attempted to portray the full details of a particular area would be too cluttered to be useful in finding a particular location or would be too large to be conveniently stored (Rogers 2006:267).

With this background knowledge, we can develop two purposefully simplified models for the *theory resource curses* associated with diamonds and petroleum. The flowcharts below track pathways from resources to the potential for economic, political, and violent resource curses. These flowcharts are based off of the scholarship of other workers and the postulations forwarded in the present work. For example, scholars such as Ross (2003) refer to the lootability of diamonds as a catalyst for violence. Therefore, in the flowchart for diamonds, there is an arrow stemming from the lootability of the resource and pointing to a violent resource curse. Other scholars, such as Barma et al (2012:49), note how shifts in bargaining power may cause strife between governments and multinational corporations. The arrow connecting shifts in bargaining power to a political resource curse for petroleum states is also depicted in the flowchart. Below is the model for how petroleum influences resource curse states. This section will also begin to dissect how diamonds and petroleum influence state behavior through different mediums and channels.

Figure 2: Petroleum and the Theory of Resource Curses



Petroleum has freed millions from the bowels of poverty, allowed for a life of ease for dozens of states, interconnected the world to an extent previously unimaginable, triggered and maintained a globalized world, and fed cities in every corner of the earth—at a price. The worldwide environmental side effects of our continued consumption of (read: addiction to) petroleum are indisputable and interconnected, as global warming contributes to polar ice shelves melting, which, in turn, catalyze sea-level rise. In addition to worldwide environmental challenges, petroleum also adversely affects specific states

from where this resource is extracted, leading to a double exposure of sorts. These states not only have to contend with the global effects of climate change, but localized ones stemming from oil production as well.

The *theory of resource curses* argues that specific qualities associated with petroleum lead states to experience a different resource curse than those with diamonds. The flowchart above details the pathway (arrows) of petroleum leading to a potential resource curse. The qualities of petroleum are depicted in brown, processes in blue, and likely resource curse outcomes in either green or orange. Green boxes indicate outcomes that lead to no resource curse, and thus, there are no arrows leading away from the green boxes. On the other hand, the orange boxes are state and sub-state ailments that potentially lead to a specific type of resource curse—economic, political, or violent. The flowchart above depicts many arrows pointed to economic and political resource curses, while only one arrow points to violent resource curse—internationalized violence. A close inspection of the flowchart also reveals that there are several pathways that lead to similar conclusions. For example, corruption and bribery may occur in nationalized oil industries or as a result of large revenue streams from oil rents.

To be clear, it is not suggested that scholars draw causal conclusions from a visual reading of the flowchart. However, similar to the model airplane, the flowchart is a useful model detailing pathways that may lead to different resource curses, and importantly, how these pathways (and the ultimate curse outcomes) are contingent upon specific qualities of the resource itself. The flowchart does not represent likelihood of outcomes or intensity of the resource curse, but it does illustrate that there are more pathways for a petro-state to experience political and economic-based resource curses relative to

diamond states, while suggesting that any violent resource curse would likely befall a state from international conflicts rather than domestic sources or gang-related activity. This is not to suggest that petroleum-rich resource curse states will not experience civil or domestic violence. They may very well suffer from local and ethnic conflicts; however, the flowchart *does* suggest that these conflicts will likely not stem from petroleum itself, but rather from reasons exogenous to this analysis. Separatist movements in Chechnya or Arab Spring pro-democracy demonstrations in Manama stem from a variety of ethnic, economic, and ideological differences unrelated to petroleum and diamond extraction in Russia and Bahrain. *Hypothesis 6* will explore this relationship in greater detail.

Analysts may draw various hypotheses from the flowchart above. The next few sections will detail how different processes, stemming from social and intrinsic qualities of petroleum, potentially lead to different resource curses. Regarding an economic resource curse, it may come as no surprise that petroleum-rich states may be more susceptible to Dutch Disease. Beyond this economic malady, the *theory of resource curses* would hypothesize the pathway of what is dubbed the 'extract and exit' phenomenon: transnational oil conglomerates irresponsibly drill in a foreign country and extract their resources while leaving the population with comparably little revenue. They may employ a small percentage of native workers in menial labor positions, but due to the capital-intensive nature of petroleum extraction, this would not alter the political economy of the state in a meaningful fashion. More often, international oil companies bring previously-trained expatriates from Western states to work on their oil rigs rather than investing money in training local workers. Unlike the path toward Dutch Disease,

which may be derived from the revenues petroleum generates, this process originates from the intrinsic qualities petroleum possesses.

Other pathways leading to an economic resource curse stem from the capital-intensive nature of petroleum discovery and extraction. Large technical and logistical coordination, involving dozens of companies along with local and federal governments, is required to successfully discover, extract, refine, and transport petroleum. This calls for extensive infrastructure, with high overhead costs and a large capital investment. In the past, drilling for oil was a simpler endeavor. But times have changed. Extraction only begins after a lengthy process attempting to discover petroleum deposits and building necessary pipes, derricks, and storage tanks. Oil wells naturally produce their own pressure. To extract petroleum, the company must drill into the oil well until there is a lower pressure at the surface than in the oil field below, which causes petroleum to rise through the well. Yet, once the oil is extracted, the company needs to build standing pools for residue. After a while, however, sea level and oil field pressures equalize, so secondary recovery becomes necessary. In order to keep oil field pressures high, a company needs to inject water into the oil field through a separate steam injector. In arid climates, water may be scarce, meaning that this water must be transported to the oil well over long distances. Additionally, the water must be kept in a storage container, and huge pumps must be built to push that water underground. These pumps nonetheless use gasoline, requiring a gas power line transporting fuel to them. Only after all of this is completed may the petroleum be separated from the water, sulfur, and mud that comes with it and be transported to a separate processing facility for refinery (Menaldo 2016:141-142). Oftentimes, due to a lack of political or economic capital, oil refineries

are located in different countries than where the petroleum is extracted.[16] For this reason, the *theory of resource curses* predicts initial investments (and therefore interests) from foreign companies rather than local ones, which may be fiscally unprepared to finance such ambitious projects. This pathway is also detailed in *Figure 2* as the final arrow pointing toward the economic resource curse. Related to these high overhead costs, domestic interests may be marginalized in lieu of foreign ones, though this may also include an influx of foreign direct investment (FDI).

Political repercussions to petroleum extraction also abound, as will be presented in *Hypothesis 1*. The first arrow potentially contributing to a political resource curse involves the relationship between the government and multinational corporations (MNC). When governments become too dependent upon rents from petroleum, they not only may be more susceptible to Dutch Disease, they also lose bargaining power against the companies extracting oil (Barma et al 2012:49; Nolan et al 2012; Peters & Richards 1998). The flip side of this scenario is the initial investment phase of petroleum extraction, called an obsolescent bargain. MNCs lose bargaining power after they invest in an oil field because of the overhead costs and logistical coordination required to extract petroleum (Ross 2012:41). Oil wells, pumps, and pipelines cannot be easily moved or used for other purposes, so when MNCs commit to these investments, they lose bargaining power to the state's government (Ross 2012:41). This would incentivize governments to nationalize their industries to reap the benefits of petro-extraction without paying for the infrastructure, which, in turn, may hinder initial infrastructure investment.

[16] Some resource curse states, such as Iraq, have very few refineries, meaning that they must export their crude oil at market value to have it refined in a foreign country, just to buy back their own petroleum, now refined, at a markup price.

Scenarios such as these would be especially true in states with a history of nationalization or unstable political climates.

The *theory of resource curses* hypothesizes the emergence of a strong, wealthy, and elite class revolving around the petroleum industry—as indicated by the pathway leading to a political resource curse—even if the government nationalizes facets of petroleum discovery, extraction, refining, and transportation. For example, Saudi ARAMCO cannot disengage itself from the whims of the royal family (Gross 2017). Paradoxically, in Venezuela, the upper echelons of the elite class actually benefit from the bolivar's hyperinflation and the downward economic spiral—they use the dollar (Brodzinsky 2015). This reality is not *ipso facto* a resource curse, but poses political representation and economic inequality dilemmas for states with already weakened institutions. This dissertation considers possessing a strong and effective resource class to be a process (not an outcome) states take to reaching a political resource curse, as shown in *Hypothesis 2*.

One of the most influential factors in petro-rich resource curse states is whether or not a state nationalizes their oil industry. Under certain circumstances, nationalization may benefit a society (e.g., British Petroleum before the wave of privatization hit the UK in the 1980s), while under others it may mismanage their resources (e.g., PDVSA in Venezuela). Nationalizing the petroleum industry allows states to hedge against 'extract and exit' policies by MNCs and potentially ensures petro-revenues remain in the country. Among resource curse states, nationalization may have two broad trajectories. On one side of the spectrum, revenue generated from petroleum may be reinvested in the community in a diversified fashion leading to sustainable development at a macro-level.

On the other side, severe mismanagement of resources may deplete revenue streams in unproductive activities compounded by corruption, paternalism, and bribery among government officials. Most resource curse states fall somewhere in between these two extremes. A partial reason why states cannot seem to escape the corruption and paternalism plaguing petro-states is the secrecy involved in collecting rents from petroleum. As Ross pithily notes, "if foreign companies were the problem, then nationalization should have been the cure" (2012:4). Due to revenue secrecy embedded into the oil industry, this has not been the case. This pathway can be traced from 'rents' in the bottom part of *Figure 2* to the political resource curse and is expanded upon in *Hypothesis 3*.

Hypothesis 4 considers petroleum-rich states to foster and enforce stricter property rights than diamond states to incentivize and facilitate petro-production and exploration. Since the time of the Romans, governments have laid claims to mineral rights found under private property[17] (Ross 2012:33). However, because petroleum is a liquid, two doctrines jar against each other regarding petro-extraction: the rule of capture and the correlative rights doctrine. These paradigms will be analyzed later on, but the crux of this branch of the *theory of resource curses* is predicting that petroleum states would have stricter property rights than diamond states to 1) promote private investment in extracting petroleum, 2) as a necessity due to the contentious nature of petroleum extraction, and 3) to ensure that the extracted wealth does not dissipate into a more communal pot. To be sure, this hypothesis investigates the enforcement of property rights

[17] The two major exceptions to this rule are the United States and Canada. The California and Klondike Gold Rush forced the American and Canadian governments to grant mineral rights to those who bought land in order to populate those regions (Ross 2012:34).

and how they may either contribute to a deeper political resource curse, or offer a way out of this entrapment, as possessing strong property rights does not render a state immune to the resource curse.

The *theory of resource curses* considers petroleum to cause less violence among resource curse states, as indicated by the only arrow—labeled international violence—pointing to a violent resource curse in the flowchart above. However, the wording here is important: petroleum-rich resource curse states may experience violence, but said violence may occur for reasons exogenous to the production of petroleum. Unlike diamonds, due to the technological demands that petroleum extraction requires, rebel gangs are unlikely to attempt to commandeer an oil well to sell petroleum in the black market.[18] The *theory of resource curses* considers this high barrier to entry a deterrent for rebel gangs. This relationship will be explored in more detail in *Hypothesis 5*.

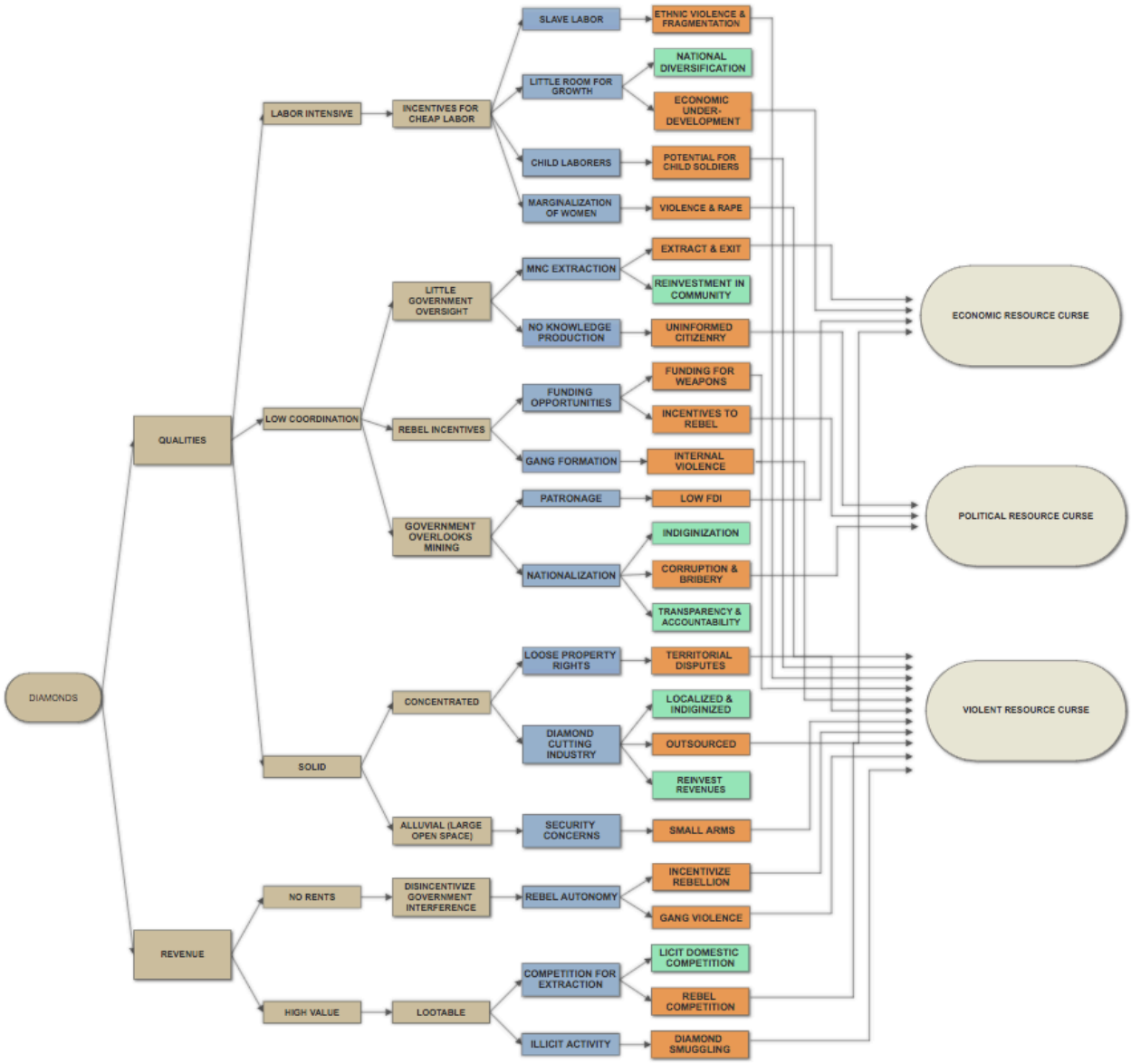
For petroleum-rich resource curse states, the *theory of resource curses* expects more coordinated international violence to occur in petroleum-rich, rather than diamond-rich states. The Iran-Iraq War (1980-1988), Iraqi invasion of Kuwait (1990), and Iraq War (2003-2011), among others, lends credence to this hypothesis. This dichotomy will be explored in greater detail in *Hypothesis 6*, also expecting diamond states to suffer from more civil violence than petroleum-rich states.

Petroleum is the world's most traded commodity, but diamonds represent substantial revenue sources as well. Botswana has become rich off its diamonds, and has seen many of its investments returned a hundred-fold. Lesotho also relies heavily on its diamond mining. India produces and polishes most of the world's diamonds. This

[18] The notable exception to this rule is the manner in which ISIS has seized oil fields and crudely refined petroleum by burning it.

resource is also abundant in Canada and Australia. Finally, South Africa not only possesses many diamonds, but also holds strong diamond extraction companies that operate around the world. Nonetheless, among resource curse states, diamonds are valuable enough to fund rebel gangs and rebellious activity yet not lucrative enough to raise an entire country out of poverty. This is the peculiar curse burdening diamond states. Below is the diamond equivalent of the flowchart above.

Figure 3: Diamonds and the Theory of Resource Curses



Diamonds are not particularly rare. They are kept artificially scarce by companies withholding them to keep prices high. And the great marketing scheme romantically recounting that 'diamonds are forever' has a point: diamonds do not decompose. Unlike petroleum, diamonds are also not the lifeblood of the world economy, needed to transport people and goods around the globe. Yet, especially in the West, diamonds hold valuable social and productive power, especially during Valentine's Day (a synthetic construct to be sure). For the *theory of resource curses*, diamonds pose inherently different problems than petroleum and therefore lead to different resource curses. A cursory glance at the pathways above indicates a higher susceptibility to violent resource curses than economic or political ones, especially in comparison to petroleum.

There are two prevalent types of diamond mining: alluvial diamond mining and kimberlite diamond mining. Below is a brief explanation of how these differences influence resource curses, but in the next section, this dissertation will delve into further details regarding the two types of diamond mining. Alluvial diamond mining is a highly labor-intensive process, requiring hundreds of low-skilled workers sifting through dirt looking for diamonds near rivers. Kimberlite diamond mining is less labor-intensive than alluvial mining, but nowhere near as capital-intensive as petroleum extraction. While in developed states, diamond mines may appear as funnel-shaped open pits reaching 500 meters in depth, incorporate heavy machinery, railroads, miles of reinforced tunnels, and skilled labor, this is oftentimes not the case in resource curse states. Alluvial diamonds, those washed in riverbeds, require nothing more than dozens of people and simple tools. Unlike the capital-intensive petroleum extraction process, diamond mining is quite straightforward. The labor-intensive nature of especially alluvial diamond mining

encourages the possibility of slave labor, child labor (with the potential of child soldiers), and the marginalization of women in the workforce. Unlike the coal miners of yesteryear who could unionize and halt the fuel lighting cities, diamond mining does little to disrupt urban economies; quite the opposite would occur—diamond prices would simply continue to increase. Many of these factors would result in a violent resource curse, and their pathways are indicated in *Figure 3.* On the other hand, positive externalities include a temptation to diversify the economy due to the little room for growth within the diamond industry. However, *vis-à-vis* resource curse states, the labor-intensive nature of diamonds would spell out certain economic differences. Due to the comparably little revenue generated from diamonds, this theory expects more economic underdevelopment in diamond-rich states than in petroleum-rich states.

Comparably low levels of coordination and technological assets for diamond mining are in striking contrast to drilling for oil. With the government largely absent from diamond extraction, MNCs, artisanal diamond mining companies, or even rebel groups have much more autonomy over the extraction process. Such autonomy may incentivize MNCs to adopt an 'extract and exit' policy or reinvest diamond revenue back into the community (if only for public relations purposes). If rebel groups have access to these mines—or even think that they may have access to them—then the government is facing a potential for rebellion, especially if rebels manage to fund themselves through diamond mining. On the other hand, if the government does involve itself in matters of diamond mining, this theory would expect less autonomy over the industry itself, potentially leading to a nationalized diamond industry. In this case, the *theory of resource curses* would expect noticeable externalities. Positive ones would be a concerted effort to

render the industry more transparent and accountable while indigenizing the extraction process. Negative externalities would be derived from paternalism if the industry is not nationalized, and corruption and bribery if it were nationalized. This pathway for these conditions is depicted above leading to an economic resource curse.

Similar to the petroleum industry, governments may not nationalize the entire diamond mining process. Once diamonds are mined, they must be expertly cut to create the brilliance associated with them in the West. As indicated above, this process may be indigenized or may be outsourced, leading to another economic-related curse. Some diamond-rich states, such as Angola, have national diamond companies, but in many cases they must compete with large MNCs for access to resources. Even more problematic is that national diamond companies may not own the entire minefield in which they operate. Endiama, the Angolan national diamond company, for example, shares ownership of many mines with Russian, South African, and Brazilian companies, some of which may not even be in the mining business at all (e.g., the large-scale engineering firm, Odebrecht, in Catoca, Angola).

As previously stated, violence may be the most common externality to diamond mining in resource curse states, with many arrows pointed at the violent resource curse in *Figure 3.* Part of this originates from the lootability of diamonds, potentially financing rebel groups, fuelling civil wars, encouraging diamond-smuggling, and funding militias. To be sure, if diamond mines do not escape the government's clutches, it could lead to licit extraction, such as in Ghana (Snyder & Bhavnani 2005:587). However, the lootability of diamonds provides a great temptation to rebel groups. When they fight each other, human rights abuses range from systematic rape to child soldiers and illicit

weapons sales. This theory predicts that, unlike petro-rich states, diamond-rich states are more vulnerable to civil violence, rather than international wars, *because* of this resource. Again, civil violence may exist in petroleum-rich resource curse states, but the *theory of resource curses* does not expect this violence to originate from petroleum production. This expectation in the *theory* bifurcates previous literature on the subject asserting that on average, "oil and lootable resources favor violent conflict" (Basedau & Lay 2009:758; Ross 2004). Whereas most resource curse literature analyzes violence, this *theory of resource curses* decouples international from civil violence, predicting that petroleum-rich states would suffer from more international violence while diamond-rich states would undergo more civil violence. This hypothesis is partially based off of the alarming rate of border disputes in the Middle East, such as the Iraqi claim over the *Shatt al-Arab*, Saddam Hussein accusing Kuwait of slant drilling, and border disputes between Saudi Arabia and Qatar.

Hypotheses

Drawing on the discussions of the distinct resource curse pathways for diamond and petroleum dependence discussed above, the present subsection outlines a set of six specific and testable hypotheses. Below is the list of six hypotheses generated from the *theory of resource curses* highlighting differences between diamond- and petroleum-rich states. These hypotheses capture some, but not all pathways for resource curse states and are designed to illustrate divergences among petroleum- and diamond-rich states between two trajectories—political and violent curses. Since many of the hypotheses below are esoteric topics that resource curse scholars normally do not analyze in their studies, this

dissertation will present more tailored motivations for each hypothesis in the chapters below.

Political Resource Curse

Hypothesis 1: Petroleum-rich and diamond-rich states will experience different types of government-MNC strife due to asymmetric shifts in bargaining power.

Hypothesis 2: Petroleum-rich states are more likely to possess a larger and more powerful elite resource class than diamond-rich states.

Hypothesis 3: Petroleum-rich states are more likely to have stronger nationalized industries than diamond-rich states.

Hypothesis 4: Petroleum-rich states are more likely to exercise stricter property rights than diamond-rich states.

Violent Resource Curse

Hypothesis 5: Rebels seeking to overthrow the government are more likely to attempt to leverage diamond mines than oil fields.

Hypothesis 6: Petroleum-rich states are more susceptible to international conflict and, conversely, diamond-rich states are more likely to experience civil violence.

Astute readers would have noticed that these hypotheses target only political and violent curses even though the theory details how economic woes can also curse a diamond- or petroleum-rich state. Four other economic resource curse hypotheses will be postulated, but not tested, in this dissertation. As an international relations dissertation, this work does not seek to creep into economic-based analyses of how resources influence state processes and outcomes. Empirically testing these hypotheses requires an economist trained in dissecting macro-economic patterns, rendering it outside of this work's expertise. Below are the untested hypotheses.

Economic Resource Curse

Hypothesis 7: Petroleum-rich states are more likely to experience Dutch Disease than diamond-rich states.

Hypothesis 8: Petroleum-rich and diamond-rich states are just as likely to experience extract and exit policies from MNCs.

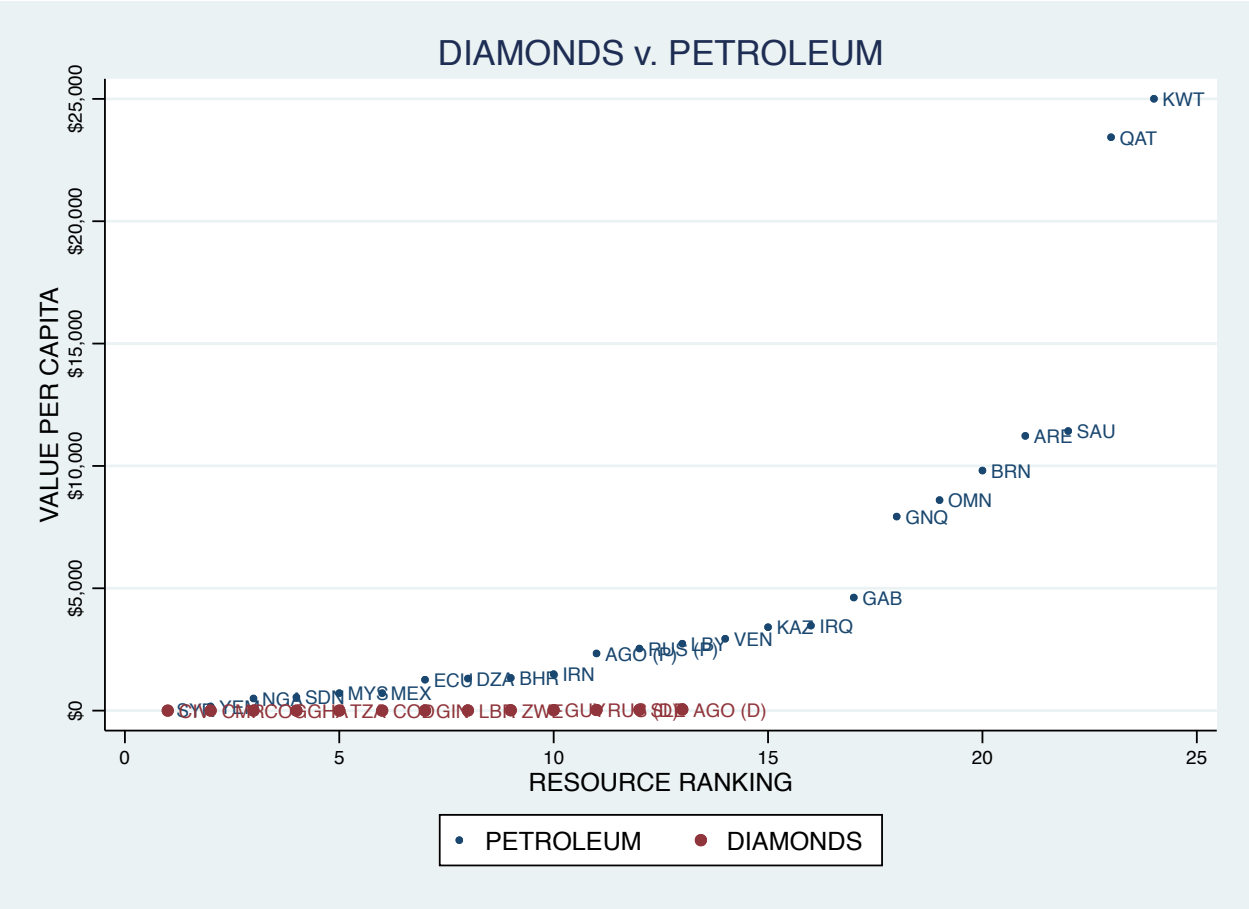
Hypothesis 9: Petroleum-rich states will attract more FDI than diamond-rich states.

Hypothesis 10: Diamond-rich states are more likely to diversify their economy than petroleum-rich states due to the disparity in rent generation stemming from diamonds and petroleum.

Before continuing with the plagues influencing diamond- and petroleum-rich states, it is important reiterate that diamonds are not plentiful or valuable enough to raise an entire state out of poverty. Assuming perfect distribution of resources—a theoretical construct, for sure—this dissertation will make use of the per capita of value diamonds and petroleum. This per capita value quantifies how much individuals in each resource curse state would earn assuming the resources were evenly distributed throughout the population. With this in mind, two charts are superimposed together to determine the differences among diamonds and petroleum with the two states having the highest monetary gain from their resource on the right. Diamond states are depicted in red and petroleum states are shown in blue. The resource curse state with the most petroleum per capita is Kuwait, with the average Kuwaiti theoretically 'earning' $25,004 annually from petroleum. The story is very different for diamonds. Angolans, on an annual per capita basis, make only $48.94 off diamonds, though they are the resource curse state with the most diamonds per capita. When discussing macro-economic resource curses, it makes little sense to consider diamond-rich states to be on par with petroleum-rich states, as even assuming perfect distribution, diamond-generated rents pale in comparison to petro-rents. Unlike petroleum-rich states, governments in diamond-rich states cannot hope to

guarantee their economic wellbeing simply by tapping into their diamond revenues. Below is the side-by-side comparison from 2014.[19]

Figure 4: Value Per Capita of Diamonds and Petroleum in Resource Curse States



The scatterplot above depicts the sheer disparity among diamond and petroleum states in this dissertation's dataset. The 'resource ranking' simply shows the states' per capita value for diamonds and petroleum; hence the upward swing in the top right of the scatterplot among petroleum states skyrocketing to over $25,000 per person in Kuwait. Conversely, the diamond states do not even breach the $50 threshold for their per capita value among resource curse states. Such differences in resource values cannot be ignored;

[19] Data on Sudan was taken from 2011, as the country split up into two states after a referendum and subsequent secession of South Sudan.

however, they do not fully explain resource curse outcomes. For a more complete analysis, the present work will amalgamate resource values with other, intrinsic values attributed to the resources themselves.

Economic-minded readers will likely point to this fiscal disparity as a reason for differing results among the hypotheses postulated in this dissertation. This would likely be the case for the economic resource curse that was forwarded above. Although this work does not test degrees of Dutch Disease (*Hypothesis 7*), extract and exit policies (*Hypothesis 8*), foreign direct investment (*Hypothesis 9*), or diversification efforts (*Hypothesis 10*), it would expect results to be reflective of disparities in resource revenue. For these hypotheses, significant differences between petroleum and diamond rents would be a necessary, but not sufficient condition, to explain the results in the subsequent chapters. Such logic may hold for some other tested hypotheses in this dissertation, such as *Hypothesis 3*, which measures nationalization rates. However, if this were a hard and fast rule, the results from *Hypothesis 1*, which tests government-MNC strife, would clash against such economically fixed opinions. As we will later note, in order to keep a stable stream of petro-rents, Venezuela ought to do little to antagonize international oil companies that pay rents to Caracas; yet this is not the case. Furthermore, the logic falls apart when studying violence. For *Hypothesis 5*, as this dissertation will later show, the cost-benefit analysis of tapping or sabotaging petroleum infrastructure is greater than that of diamonds, yet rebels continue to seek diamond mines rather than oil fields, casting doubt upon *homo economicus* theories prevalent in economic-based studies of the resource curse.

Given the shockingly different economic disparities between diamonds and petroleum, it behooves the reader to familiarize themselves with the two resources. While it is not necessary to delve into a critical reading of the intricacies of the diamond and petroleum trade, background information is valuable in understanding the differences between these resources.

Diamonds

As mentioned in *Chapter 2*, there is a marked difference between alluvial and kimberlite diamonds. Snyder and Bhavnani (2005) make a sharp distinction between the lootability of these two different types of diamonds. Alluvial diamonds, such as those found in Sierra Leone, are those deposited by moving water, such as in a riverbed. Oftentimes, by the time they are collected, the material around alluvial diamonds has been eroded by water, leaving the uncut stone exposed. Because most alluvial diamonds are deposited over large swaths of land, capital-intensive diamond extraction becomes less competitive. Since these diamonds are moving along with the river, largely unskilled laborers sifting through the river can successfully uncover diamonds in between rocks, mud, and sand. These few barriers to entry, combined with the high value of the resource, render alluvial diamonds as lootable.

On the other hand, diamonds are also found in kimberlite, an igneous rock produced in vertical columns, commonly known as kimberlite pipes, along the earth's crust. Kimberlite pipes are formed from volcanic eruptions approximately 40 million years ago (Barrera 2017). Diamonds are found in the earth's mantle, and during these volcanic eruptions, diamonds are violently pushed toward the earth's surface, creating

these pipes. The igneous rock created from volcanic eruptions tend to house these diamonds, called kimberlite after the town Kimberley, South Africa, where diamonds were once discovered in these rocks. Diamond exploration companies target kimberlite pipes as they potentially hold high concentrations of diamonds. The search for these pipes may take decades, as only a small fraction of kimberlite pipes possess enough concentrations of diamonds to render extraction profitable (Barrera 2017). Two of the largest kimberlite pipes are located in resource curse states: the Camafuca Pipe in Angola and the Mwadui Pipe in Tanzania (Treble 2012). The capital-intensive nature of kimberlite diamond mining, combined with the technical expertise and experience required to commence drilling, renders these diamonds as non-lootable resources though kimberlite diamonds are chemically and physically similar to alluvial diamonds.

A blood (or conflict) diamond is a term used to define a diamond mined to fund or aid a war or an insurgency, or by using illicit child labor. Blood diamonds may be used to fund a warlord's activity and finance rebellious enterprises. Since the denouement of the Sierra Leonean Civil War in 2002, the United Nations has taken a keen interest in preventing the proliferation of blood diamonds in the world market. In response to this, they formed the Kimberley Process. In their words, the Kimberley Process is a "joint government, industry and civil society initiative to stem the flow of conflict diamonds – rough diamonds used by rebel movements to finance wars against legitimate governments" (Kimberley Process 2017). This scheme has been largely successful, and is currently removing 99.8% of conflict diamonds from the world supply chain. Much of the data concerning blood diamonds originates from the Kimberley Process, allowing the

analyst to account for total diamond production by 2015 US dollars, carats, and value per carat.

Petroleum

Not all petroleum is created equally. Petroleum has many characteristics and can be classified through two different properties: API gravity and sulfur content. Other qualities, such as onshore and offshore petroleum, are important in the discovery and extraction process. The American Petroleum Institute (API) gravity is the unit measuring the density of petroleum. The lighter the petroleum, the more it floats in water, while heavier petroleum tends to sink. For most petroleum-based products, a lighter API gravity is coveted as it renders the refining process less expensive. Heavier crude oil, on the other hand, must be processed much more than light petroleum. To render heavy crude oil as profitable as possible, it behooves the refining company to convert it into a heavier petroleum-based product, such as asphalt, rather than a lighter product, such as jet fuel. The API gravity of petroleum is calculated by the result of (141.5/Specific Gravity) – 131.5 at 60° Fahrenheit. 'Light' crude oil has an API gravity of 31° or higher, and needs to be processed less than medium or heavy crude classifications of petroleum. Confusingly, some types of petroleum market themselves as 'light' petroleum, though they may be considered of medium density. For example, Basrah Light from southern Iraq is marketed as a light petroleum, though this crude does not reach the 31° threshold and ought to be publicized as a medium crude (BP 2018). Crude oil of around 50-60° tends to be called 'condensate,' meaning that it is a gas inside the oil field, but condenses into a liquid as it gets extracted. Anything higher than 60° is generally considered natural

gas that can also be used for fuel. Lower API gravities, such as those found in the Orinoco Belt of Venezuela, tend to hover at the 15-20° range. API gravities of 10° or lower mean that said petroleum neither floats nor sinks in water.

The sulfur content of petroleum is the second measure of the quality of oil that may influence the price and refining process; it is common to find significant amounts of hydrogen sulfide (sulfur) in crude oil. 'Sweet' crude oil has low levels of hydrogen sulfide (< 1%) while 'sour' crude has levels over 1% of sulfur in the petroleum. Since sulfur must be purified from crude oil in order for it to be turned into a finished product, sweet crude is generally worth more than sour crude because it can be refined to a smaller degree. Generally speaking, some of the sweetest petroleum is found in Malaysia, Norway, United Kingdom, Indonesia, United States, and Australia. Crude petroleum blends from the Persian Gulf tend to hover between 0.5-1.5% sulfur levels. Notably, the OPEC basket of crude petroleum tends to be sourer than the world average. Perhaps this is part of the reason why OPEC-member states decided to consolidate into a cartel, despite their cultural, religious, and ethnic animosity. The sourest petroleum tends to come from shale oil, especially found in Venezuela and Canada. Orinoco Belt and Maracaibo region petroleum in Venezuela reach as high as 5.40% sulfur.

There are a few petroleum benchmarks traded in global stock markets. Traditionally, Brent Crude, from the North Sea is considered as the world benchmark. Other regional-specific benchmarks include the West Texas Intermediate (WTI) in North America, Bonny Light from Nigeria in Africa, and Dubai Crude in the Middle East. These benchmarks are largely mixtures of many different types of petroleum so that the same product in terms of API gravity and sulfur content are consistently reached. For

example, Brent Oil has an API gravity of 38.3° and a sulfur content of 0.37%. However, this petroleum comes not from only the Brent oil field in the North Sea, but also from the Forties and Ekofisk oil fields, which are co-shared with Norway. Oftentimes, denser petroleum is mixed with lighter varieties to create a recognizable mixture that can be bought and sold with the buyer knowing exactly what they are purchasing.

Case Selection

There are over 190 states in the world, all with many different resources. However, not all of them experience any resource curse. OECD states, for example, seem to be exempt from this phenomenon. Asian tigers, banking microstates, and resource poor states also do not experience the type of curses analyzed above. As briefly mentioned in the introduction, thirty-five states will be analyzed, but what are the parameters by which this dissertation considers states to suffer from a type of resource curse?

One avenue to explore is dependency on a single resource by analyzing a state's exports. High exports of a single resource often equate to high dependency, indicating a lack of diversification in the state economy. However, states may consume much of their own resources, as many petro-states do not export vast quantities of their petroleum because it is used domestically. This is still a dependency on the resource though it may not appear in export percentages. For diamond states, not only do they not rely on exports to the same degree as oil states, their resource does not deplete in the same way petroleum is consumed. Additionally, if blood diamonds lead to a resource curse, then we can hardly expect smuggled diamonds to pop up in a state's exports. The combination of

these reasons leads this dissertation to consider resource production, rather than resource exports, as a more indicative measure of dependency.

Since part of the *theory of resource curses* analyzes political resource curses, another possibility is to explore the types of governments in place. Among oil states, dictatorships may be a result of a political resource curse[20] (e.g., Kazakhstan, Equatorial Guinea, Libya under Gaddhafi, Iraq under Saddam Hussein, etc.). Furthermore, populist-leaning states potentially legitimized by rents from their resources blur the lines of democratically elected governments (e.g., Venezuela, Russia, Angola, and to lesser extents, Mexico and Ecuador). Finally, there are resource-rich monarchies fueled by their petro-wealth that other scholars, such as Menaldo (2016) have considered to be resource curse states in their analyses. These states include Oman, Saudi Arabia, Qatar, Kuwait, UAE, and, to a lesser extent Bahrain. Monarchies not only may hamper democratic developments in Middle East states; some laws prevalent in monarchies are alarmingly dictatorial. For example, restricting women's abilities to drive in Saudi Arabia borders on a human rights abuse.[21] Oil-rich monarchies are not endemic to the Gulf; Brunei and Malaysia also have monarchs ruling over their petro-states, marginalizing democratic advances in their states, though they provide their citizenry with good-enough, albeit undemocratic, government. Still other states may suffer not only from political malformations but also from economic woes despite their resource wealth (e.g., Yemen,

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[20] Dictators also govern plenty of resource-poor states (e.g., Cuba under Castro, Somalia under General Aidid, North Korea under Kim Jong-un, etc.). However, because these states do not possess unusual amounts of petroleum or diamonds, they lay outside of the realm of this dissertation.

[21] Furthermore, and raising eyebrows, according to multiple news sources, a man was kicked out of Saudi Arabia in 2013 for allegedly being too handsome (Reilly 2013; Lau 2013; Kuruvilla 2013).

Algeria, Sudan, and Syria). Regarding oil states, either a single factor, or a combination thereof, may expose a state to experience some type of resource curse. In short, oil buys many things, but not democracy.

Conversely, diamond states are often beacons of democracy in otherwise dictatorial regions. For example, Ellen Johnson Sirleaf, the Nobel Prize winning Harvard-educated politician, became president of Liberia in 2008 and Africa's first democratically elected female leader. Though democracy (currently) abounds in West Africa, diamond states may still experience abject poverty, systemic violence, and government corruption. Although many states around the world possess vast diamond deposits, ranging from Canada to Australia, very few enjoy enough diamonds to make a noticeable difference in their domestic and international affairs. Complicating matters is that many states export cut diamonds that are already mounted into profitable jewels (e.g., Hong Kong, Belgium, Israel, Luxembourg, and Singapore) indicating that analysts should not observe exports if they are to focus on *bona fide* diamond-producing states. India stands out as a state importing large percentages of uncut diamonds, polishing them into valuable gems, and then exporting them to the West or selling them domestically. However, for the purposes of the *theory of resource curses*, states producing diamonds *and* experiencing the symptoms scholars associate with the resource curse are of special interest. Except for Guyana and Russia, these states tend to reside in Africa.

There is a gray area in selecting diamond states susceptible to resource curses. First, diamond states are selected because they are signatories of the Kimberley Process, which provides one of the few public and reliable datasets regarding diamond production. To complicate matters, especially in recent years, many diamond states have begun to

discover petroleum. Revenue from this newfound resource has easily outstripped (reported) diamond revenue. Liberia, for example, began auctioning off offshore blocks for petroleum production, with many contracts sold to international corporations, such as Chevron and the Spanish-based Repsol (Dean 2004). Offshore oil was discovered in Ivory Coast in the late 1970s with production commencing a few years later. Other diamond states have enjoyed large oil profits for years before 1980, when this analysis begins, and well into the 1980s and 1990s, only to see business progressively decline over the past 30 years. Still others, such as the Republic of the Congo, while diamond-rich, and coded as a diamond state, produce and export enough petroleum to be considered a petro-state as well. Nonetheless, the acute reason as to why Republic of the Congo and others are documented as diamond states is that blood diamonds have wreaked havoc in these states while petroleum, though lucrative, has neither led to civil and gang violence of such scale nor to the illicit export of resources (e.g., Goldman 2014; Deibert 2007). Other states, such as Cameroon, are not great producers of diamonds, neither in terms of value or carats. Yet, due to the location of diamond mines on the Cameroon-Central African Republic border, diamonds have been smuggled across borders, leading to the state's failure to implement Kimberley Process goals (Jamasmie 2016). Still other states, such as the Democratic Republic of the Congo (DRC), are blessed with enormous reserves of gold, copper, cobalt, timber, and uranium, on top of diamonds. Nevertheless, as Jones (2004) notes, diamonds are by far the DRC's most valuable resource, acting as a pillar for their struggling economy. Along this vein, this dissertation can only incorporate *disclosed* diamond production, as smuggled gems will not appear in any public dataset.

A peculiar question may arise from the different resource curses stemming from diamonds or petroleum: is it possible for a state to suffer from multiple resource curses, especially if they have both diamonds and petroleum? From an empirical standpoint, only two states in this dataset, Angola and Russia, are likely candidates for such a scenario, as they are the only two states with substantial amounts of diamonds and petroleum. As this work will later depict, a single state with both diamonds and petroleum may suffer from different resource curses. From *Hypothesis 2*, it is evident that Russia may experience a disparity in inequality stemming from their diamond and oil production.[22] In addition, *Hypothesis 5* analyzes how Angola suffered from separatist movements in Cabinda partially stemming from its petro wealth, while simultaneously experiencing rebel violence in the mainland over diamond mines, leading to different curses. From such quantitative and qualitative evidence, it appears that a state may suffer from more than one resource curse if they have both diamonds and petroleum. It also seems to be the case that diamonds and petroleum catalyzes states to react differently. Drawing from *Figures 2* and *3*, this work allows for the theoretical potential of Russia and Angola suffering from stronger economic and political resource curses in relation to their petroleum and stronger violent resource curses stemming from diamond production. To some extent, *Hypotheses 2* and *5* illustrate the divergence in curses as they relate to their resources.

However, the question remains: can a state with one resource suffer from multiple resource curses? Theoretically, the arrows in the flowcharts found in *Figures 2* and *3* allow for this reality. Yet empirically, since this work is not examining the existence of

[22] The regression lines in *Figures 11* and *12* depict how the top 1% and 10% in Russia become wealthier as petroleum production increases yet become poorer as diamond production increases.

an economic resource curse, it has not found reliable evidence of a state suffering from an economic resource curse *and* a political or violent curse. By the same logic, systematic political problems may result in violence and vice versa. However, as this work concentrates on the original tracks resource curse states take, the causal arrows have not yet flowed in more than one direction. Theoretically, a state may adopt a path leading to a political resource curse while simultaneously taking another path following an economic resource curse, and additionally triggering a violent resource curse. There is an important gap in the literature here that deserves more attention. However, as this dissertation is concentrated on determining non-monotonic differences between resource curse states and not seeking to answer how many curses a state may suffer from, such questions, though interesting, remain exogenous to the present work.

Drawing upon the logic outlined above, and as noted in the introduction, thirty-five states will be quantitatively analyzed and often will be abbreviated by their UN-designated 3-digit codes listed next to their names: Algeria (DZA), Angola (AGO), Bahrain (BHR), Brunei (BRN), Cameroon (CMR), Republic of the Congo (COG), Democratic Republic of the Congo (COD), Cote d'Ivoire (CIV), Ecuador (ECU), Equatorial Guinea (GNQ), Gabon (GAB), Ghana (GHA), Guinea (GUI), Guyana (GUY), Iran (IRN), Iraq (IRQ), Kazakhstan (KAZ), Kuwait (KWT), Liberia (LBR), Libya (LBY), Malaysia (MYS), Mexico (MEX), Nigeria (NGA), Oman (OMN), Qatar (QAT), Russia (RUS), Saudi Arabia (SAU), Sierra Leone (SLE), Sudan (SDN), Syria (SYR), Tanzania (TZA), United Arab Emirates (ARE), Venezuela (VEN), Yemen (YEM), and Zimbabwe (ZWE).

Triangulating resource curses requires a large-*N* quantitative analysis combined with qualitative case studies. *Hypotheses 2, 3,* and *4* adopt quantitative measures to assess the strength of resource classes, nationalization levels, and property rights enforcements, respectively, among resource curse states. *Hypotheses 1* and *5* are specifically tailored for a qualitative analysis to pinpoint agential incentives in resource curse states. *Hypothesis 1* analyzes differences in government-MNC strife among diamond- and petroleum-rich states and will assess how friction between governments and multinational companies differs contingent upon the resource in question. This hypothesis will test differences between Tanzania's expropriation of Petra Holding's diamonds and the Venezuelan government's spearheaded campaign to increase petro-rents from international oil companies (IOC).[23] *Hypothesis 5* seeks to determine how resources incentivized rebel activity during three separate civil wars during the 1990s in Africa, comparing roles resources played in determining outcomes throughout these conflicts. Algeria, Angola, and Sierra Leone all had civil wars throughout the 1990s, yet their resources played different roles in these conflicts. *Hypothesis 5* will determine the differences between petroleum's role in the Algerian Civil War (1991-2002), the roles of petroleum and diamonds in the Angolan Civil War and Cabinda War (1975-2002), and the role of diamonds in the Sierra Leonean Civil War (1991-2002). These hypotheses are purposefully picked to analyze drastically different pathways and outcomes among resource curse states. The hypotheses are intended to capture differences among

[23] International oil companies (IOC) are, by their nature, multinational corporations (MNC). Because of this, the terms IOC and MNC will be used interchangeably for the rest of this dissertation when referring to international oil companies. Diamond companies, on the other hand, may be MNCs (e.g., De Beers), but can never be IOCs because they do not extract petroleum.

diamond- and petroleum-rich states before the causal arrows of a full-on resource curse flow in every direction. To avoid endogeneity issues and collinearity among the hypotheses, they purposefully measure unique crossroads resource-rich states ultimately face, such as whether or not to nationalize their extraction industries. It is from the differences between diamond and petroleum states found these hypotheses that the *theory of resource curses* suggests that resources influence institutional capacity in non-monotonic manners, ultimately leading states to experience vastly different outcomes.

Since this mixed-methods approach to understanding the resource curse involves different methods to testing each hypothesis, the methods will be discussed before each hypothesis. Additionally, since each hypothesis deals with more specific facets of the resource curse, ranging from private property enforcement to civil and international violence, the introductions to each hypothesis will incorporate a literature review along with background information. The next three chapters will comprise of the bulk of the dissertation, discussing various facets of the political and violent resource curses. *Hypotheses 1* to *4* will measure political resource curse processes and outcomes while *Hypotheses 5* and *6* determine differences in violence among diamond- and petroleum-rich states.

Chapter 4

THE POLITICAL RESOURCE CURSE (PART 1)

As developed in the previous chapter, the *theory of resource curses* expects that states with different resources will suffer from different curses. With this in mind, the theory develops ten hypotheses, six of which will be tested. The first four, though applicable, are mostly related to economics rather than political science, and thus will not be tested. As for the six testable hypotheses, four are political processes (*Hypotheses 1-4*) and two are violent outcomes (*Hypotheses 5 & 6*). By focusing on both processes and outcomes, the current work seeks to decouple the differences between resource curse states that possess diamonds and petroleum.

The first political resource curse hypothesis measures differences in government-MNC strife in diamond- and petroleum-rich states along eight separate tracks. This qualitatively tested hypothesis will include valuable background information and set the stage for the next hypotheses, which will largely be evaluated by quantitative means. Common to all the hypotheses tested in this chapter is their highlighting of the political differences in diamond- and petroleum-rich states stemming from their resources. *Prima facie* initial pathways resource-rich states adopt when extracting diamonds or petroleum may seem insignificant, but they often lead to diverging results. These hypotheses will accentuate how these divergences develop over time, ultimately leading to different resource curses.

Testing Hypothesis 1

Petroleum-rich and diamond-rich states will experience different types of government-MNC strife due to asymmetric shifts in bargaining power.

Drilling for petroleum and mining for diamonds consist of drastically different processes, not only regarding technological capabilities and skilled labor, but also in government contracts, deployment of resources, infrastructure malleability, and time horizon differences. These factors ultimately lead to asymmetric shifts in bargaining power between governments and multinational corporations (MNC). *Hypothesis 1* is designed to highlight these shifts, teasing out differences between resources and government-MNC strife. On account of the prohibitive overhead costs, esoteric and immobile infrastructure, capital-intensive nature, and the highly skilled workforce necessary for petroleum extraction, *Hypothesis 1* predicts that petroleum MNCs, also called international oil companies (IOC), will experience more consistent strife with governments than their diamond counterparts. Unlike the expensive infrastructure necessary to extract petroleum, where returns on investments (ROI) take years, small-scale companies mining for alluvial diamonds do not require such a lengthy or expensive process. Furthermore, alluvial diamond mining is a low-skilled enterprise where specialties and responsibilities are concentrated in security personnel and managers rather than with ROI-incentivized workers. Oil rigs, on the other hand, are capital-intensive, requiring a highly skilled workforce where each individual is responsible for not only operating heavy equipment, but also the safety of their coworkers on site. This cannot be said for the low-skilled labor extant in diamond fields. From the perspective of C-level directors, the up front costs of oil rigs (especially offshore ones) are both prohibitive and

risky, indicating that IOCs will bargain heavily with governments for concession rights and long-term contracts. Without this concrete bargaining process, oil companies run the risk of not breaking even in their petroleum investments. Diamond MNCs, especially artisanal diamond miners, do not have such expensive up front costs and their presence in mines does not represent such high-priced investments.

In petroleum states, scholars have noted how shifts in bargaining power may lead to strife between governments and MNCs. From the perspective of the MNC, they require governmental 'credibility of intertemporal commitments' seeking political stability and no deviation from the law (Barma et al 2012:11), as MNCs are unlikely to invest in a state if the government has a reputation for expropriating businesses and infrastructure. Furthermore, MNCs are aware of potential risks governmental nationalization efforts would have if the state expropriated their infrastructure, as concessions, wells, pumping stations, and pipelines all must be in place *before* petroleum is extracted. Because the infrastructure cannot be easily moved, or implemented for other purposes, the IOC loses bargaining power to the government *after* initial investments (Ross 2012:41). Such scenarios often lead to obsolescent bargains between both parties. From the state's perspective, the government loses bargaining power with MNCs if it finds itself to be dependent upon petroleum, as it cannot quickly inject money into the economy without petro-rents. Despite the 'primacy of the state,' governments do not enjoy complete control over concession rights; rather, elites, both in and out of the government, bargain for resource power (Barma et al 2012:49). Particularly, rent-seeking pseudo-entrepreneurs enjoy 'umbilical relationships' with the government (Dauderstädt & Schildberg 2006:21; Barma et al 2012:48). This public-private relationship, if

successful, blurs the distinction between the government and MNCs (Vatansever & Gillies 2009:15), and if unsuccessful, potentially leads to strife among the parties.

From the diamonds perspective, no state is completely reliant on this resource, simply because there are not enough diamonds in any state to secure highly valuable rents or lift a resource curse state out of poverty. As mentioned in the literature review, diamonds are found in two main types of deposits—alluvial and kimberlite. Alluvial diamond mining is largely labor-intensive and has few barriers to entry. Kimberlite diamond mining is more complex and generally involves more advanced machinery, yet the infrastructure needed for kimberlite diamond mining is not as esoteric as what is found on oil rigs. Important among resource curse writings is the focus on artisanal diamond mining (ADM), referring to small-scale diamond operations conducted by locals using basic mechanized equipment. In many resource curse states, artisanal diamond mining plays an important economic role, with estimates from the Communities and Small-Scale Mining (CASM), a World Bank-backed initiative, suggesting that up to 100 million individuals are dependent upon ADM in over 50 states (Vlassenroot & Van Bockstael 2008:3; CASM 2008). Due to the well-received benefits of ADM, many developing economies seek to incentivize locally driven diamond mining over foreign-held MNC operations. Similar to any enterprise, ADM comes with potential drawbacks: smuggling, bribery, tax evasion, and illicit border trading remain symptomatic of this largely unwatched enterprise (Lujala, Gleditsch, & Gilmore 2005; Vlassenroot & Van Bockstael 2008; Ross 2003). The Janus-faced struggle of incentivizing either local ADM or backing foreign MNC initiatives leaves governments with a peculiar shift in

bargaining power, unrelated to neither the price of diamonds nor the infrastructure MNCs invest in diamond mines.

With these conditions in mind, two states, a petroleum-rich state and a diamond-rich state, will be assessed to determine differences in governmental-MNC strife. States reliant on petroleum are better candidates for testing this hypothesis than others possessing more diversified economies, though they may be petroleum-rich, such as Russia or Mexico. Conversely, states that remain too reliant on petroleum are more likely to allow their nationalized industries to become hegemonic in petro-extraction, thereby controlling almost every aspect of the petroleum trade. ARAMCO in Saudi Arabia, the Kuwaiti Petroleum Corporation in Kuwait, and the National Iranian Oil Company in Iran are emblematic of this omnipresence in nationalized oil industries. Their preponderant power in oil states leave little room for other MNCs to conduct business, rendering them practically ineligible as case studies for *Hypothesis 1*. However, Venezuela, though wielding a powerful nationalized oil company, *Petróleos de Venezuela, Sociedad Autónoma* (PDVSA), holding valuable political clout in Caracas, still conducts business with foreign oil companies, including Chevron, ENI, Total, and Statoil (now Equinor). As PDVSA competes with these foreign companies, *Hypothesis 1* expects not only governmental favoritism but also active and consistent strife between the state and foreign MNCs.

From the vantage point of diamond states, there are a few prospective choices. Sierra Leone is rich in diamonds, but because of its civil war and the subsequent UN interference, its resources have been very well regulated by outside forces. Angola is another candidate and is the state with the most diamonds per capita considered in this

dissertation. Yet, due to the omnipresence of their nationalized diamond mining company, Endiama, combined with the long-lasting Angolan Civil War (1975-2002), Angola is not a perfect fit for *Hypothesis 1*. Tanzania is another state, albeit with fewer diamonds, that has experienced strife between the government and foreign MNCs over its resources. The Williamson Diamond Mine, in the Shinyaga region near Lake Victoria, contains most of Tanzania's diamonds and has become a lightning rod for government attention, triggering pushbacks from Petra Diamonds, the operator of most of the mine.

The case studies below will accentuate eight key distinctions in Venezuela and Tanzania, found below in *Table 1*, paying particular attention to highlighting the differences in resources, and how these they compelled states to behave differently. These eight characteristics of strife are quite apparent in Venezuela and Tanzania, but these patterns potentially reach beyond these states to others enjoying these resources. Particularly, the second, sixth, and eighth characteristics of government-MNC strife are conditional upon the resource in question, indicating more external validity among these tracks. As seen from export ratios, many petroleum-rich resource curse states become overly reliant on petro-exports, while no diamond state possesses enough diamonds to reach such levels of dependency. The capital- or labor-focused nature of government-MNC strife is conditional upon the resource, as petroleum extraction has become a capital-intensive enterprise, while diamond extraction, especially ADM, remains a much more labor-intensive endeavor. Finally, due to the preponderance of petroleum as the world's principal fuel source, IOCs can counter governmental advances through

international legal means.[24] Diamond companies have legal backing as well, but there is neither the extent of legal precedent nor the institutionalized means of suing a state for expropriating company resources.

While the second, sixth, and eighth indicators of government-MNC strife are to a large extent generalizable, the other characteristics are differentiating patterns found in Venezuela and Tanzania that may bestow less external validity to other resource curse states. For example, while it is neither expected for every oil-state to experience consistent strife with IOCs nor every diamond state to suffer from intermittent strife with foreign companies, Venezuela and Tanzania are emblematic of larger patterns in resource curse analyses. Indeed, some petroleum-rich states do not experience strife with foreign companies because IOCs are not allowed to operate in-country. Additionally, not every petroleum-rich resource curse state will be plagued by the internationalization and inter-sectional strife that Venezuela suffers from, but due to the more interconnected nature of the petroleum trade, this characteristic seems more plausible than in diamond states. In short, there is little external validity to this analysis; however, such differences in strife are useful in comparing how resources influence governmental institutions and policymaking. Further research must be conducted to definitively support the external validity of the first, third, fourth, fifth, and seventh characteristics of government-MNC strife. Nevertheless, this work will illustrate how all eight characteristics embattling

[24] For example, China's Sinopec is suing Venezuela over unpaid bills (Pham 2017), and recently ConocoPhillips was also awarded $2 billion in arbitration against PDVSA (Wernau 2018). Additionally, US shareholders filed a wide-ranging civil lawsuit against the Russian government and a slew of Russian oil companies claiming the parties conspired to re-nationalize the oil giant without compensating its owners (Kirchgaessner 2005).

Venezuela and Tanzania denote fundamental differences in government-MNC strife among resource curse states.

Before analyzing these cases, below is a table illustrating eight tracks in which government-MNC strife took different forms in Venezuela and Tanzania. The eight tracks below represent micro-pathways resource curse states adopt, potentially leading them to different resource curses. The reader will note how the eight tracks are diametrically opposed to each other. Therefore, despite similarities among options in Venezuela and Tanzania, there are fundamental differences between the types of government-MNC strife these states experience. Finally, political strife between governments and multinationals is nothing new and may not lead to a resource curse. Yet, as this dissertation only looks at resource curse states, it is measuring how this strife is different among diamond- and petroleum-rich states.

Table 1: Characteristics of Government-MNC Strife in Venezuela and Tanzania

VENEZUELA (petroleum-rich)	**TANZANIA (diamond-rich)**
1. Consistent Strife	1. Intermittent Strife
2. Dependent Upon Resource	2. Not Dependent Upon Resource
3. Internationalization of Strife	3. Localization of Strife
4. Inter-Sectional Strife	4. Containment of Strife to Extraction Industry
5. Strife Contingent Upon Resource Prices	5. Strife Independent of Resource Prices
6. Capital-Focused Strife	6. Labor-Focused Strife
7. Incremental Strife	7. Sudden Strife
8. International Legal Backing	8. Domestic Legal Backing

The two case studies below will point back to the differences between government-MNC strife in both Venezuela and Tanzania. First, this work will analyze the relationship the Venezuelan government holds with key MNCs, and how that strife influences governmental policymaking.

The Case of Venezuela

Throughout the 1960s and 1970s, Venezuela was one of the richest and most advanced states in Latin America. Bolstered by relatively high oil prices and the stable governance of Rómulo Betancourt, Venezuela experienced a sustained period of peace and prosperity. Unlike most resource curse states, Venezuela ironically transitioned from a dictatorship to a democracy at the height of its oil wealth during this period (Karl 1997). Throughout this time, the government in Caracas did what all petroleum resource curse states end up doing—they invested heavily in the oil industry. Though Venezuela was largely a petro-exporter, the government also managed to diversify their revenue base by developing large agricultural and tourism sectors. While these parts of the economy were not the moneymaking machines that the petro-industry was, they were labor-intensive and employed many locals. These industries also acted as buffers should oil prices tumble; the Venezuelan people could continue working in variegated sectors of the economy despite low oil prices affecting export revenues.

After the two oil crises in the 1970s, two things happened: first, industrialized states learned how effective a cartelized oil embargo could shut down their economies. As a result of this, they began hedging against another embargo by searching for oil in non-OPEC[25] states. Petroleum began flowing from fields in Malaysia, Mexico, Canada, Australia, and Norway. This not only diminished OPEC's bargaining power as a cartelized bloc, it also lowered oil prices since diversified supply was almost guaranteed.

[25] Founded in Baghdad in 1960, the Organization of Petroleum Exporting Countries (OPEC) was originally comprised of only five states: Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. Importantly, these states decided to cartelize their primary moneymakers rather than fight IOCs alone, despite the fact that many of the original OPEC-member states would end up fighting each other.

Industrialized states also learned that liberalizing their oil economies would ensure that no state, bloc, or cartel could effectively embargo them in the future. By quantitatively restricting petro-exports to ensure a steady income for member states, OPEC effectively manipulates the price of oil, thereby limiting free trade and driving against neoclassical economic theory (de la Vega Navarro 2008). Yet, OPEC is capable of limiting petro-sales, thereby defining the real price of oil, only in the form of quotas (Kaufmann 2004); it has no other economic weapon. It is up to its members to abide by these quotas to ensure high prices of petroleum. Yet, there is always the incentive to cheat and produce more than the allotted quota to sell more petroleum at the higher set price (Colgan 2012:2; Molchanov 2003). Not only is this the most common source of instability in cartels, OPEC's demographic heterogeneity (Stigler 1964; Smith 2008:4-5) leaves Venezuela—and to a lesser extent, Ecuador—as major unprotected satellites of this cartel in the Americas.

Second, in response to an upswing in non-OPEC oil, members of this cartel had to contend with competition from other states by increasing their own production, consequently further driving down the price of petroleum. This contributed to the debilitation of the Venezuelan economy, which had already tapped all of its easily accessible petroleum, and began drilling offshore, especially in the Maracaibo Basin (e.g., Escobar et al 1997). While the Bachaquero-01 petroleum found in Lake Maracaibo is sweeter and has a less API gravity than other Venezuelan oil, such as in the Orinoco Belt, it is considered less valuable than other worldwide light crude petroleum varieties. Due to the economic slowdowns partially due to drops in oil prices, anti-government movements began to spring up all over the country in the 1980s, including the

Movimiento Bolivariano Revolucionario-200, the Revolutionary Bolivarian Movement-200 (MBR-200).[26] Founded by Hugo Chávez in 1982, this leftist movement sought to destabilize the governing elite in Caracas.

Yet it was not until 1992 that the MBR-200 attempted to overthrow the government of Carlos Andrés Pérez. Hugo Chávez, now a lieutenant colonel commanding a paratrooper division, attempted to overtake key military and communications installations near Caracas as part of the attempted coup. Government forces narrowly defeated the movement and Chávez was jailed. However, the government of Pérez, suffering from stagnant economic development, was so unpopular that the attempted coup made Chávez a hero in the eyes of many Venezuelans (Coppedge 2002:3). He would carry on this fame throughout his imprisonment and ultimately win the 1998 elections by a 16-point margin of victory (Reich et al 1999). Chavista-style government ruled Venezuela from 1998 until Chávez's death in 2013, and would be succeeded by the increasingly authoritarian Nicolás Maduro to the present day.[27] It is with this backdrop that *Hypothesis 1* will analyze governmental-MNC strife in Caracas during the Chávez and Maduro regimes.

As posited in *Table 1,* the price of oil played a significant role in Venezuelan government-MNC strife. Petroleum traded at a stable rate for most of the 1990s. With the exception of the spike in oil prices during the Persian Gulf War (1990-1991), crude oil hovered between $17 and $30 per barrel. Coinciding with the beginning of Chávez's

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[26] The '200' at the end of the title of the movement commemorates the 200th anniversary of Simón Bolívar's birthday.

[27] Before Maduro became President of Venezuela, he was the Minister of Foreign Affairs for seven years before becoming Chávez's Vice President a few months before he died.

tenure, world oil prices increased from $17 per barrel in 1998 to $38, adjusted for inflation, just two years later (McMahon 2017). Perhaps in response to this increase in prices, in November 2001, the Venezuelan government decreed a new Hydrocarbon Law, reversing a policy that allowed foreign MNCs to hold majority interests in partnerships with *Petróleos de Venezuela, Sociedad Autónoma* (PDVSA), the petro-arm and nationalized oil company (NOC) of the Venezuelan government (Lifsher 2001).

Geopolitically, Venezuela's Hydrocarbon Law accomplished two goals. First, Chávez's ideology was one of anti-US imperialism, and housing US oil companies in Venezuela likely clashed with his vision of how Venezuela's resources ought to be managed. Though a few years in the making, this law came into effect right after the 9/11 attacks, as Washington was seeking to loosen its dependence on Middle East petroleum, indicating that the US would have to rely more on Mexico, Canada, Venezuela, and, to a lesser extent, Nigeria. Attacking US petroleum interests in Venezuela would decrease the bargaining power of many American IOCs operating in Venezuela, as Washington had little choice but to tap into oil markets outside of the Middle East. The timing of this Hydrocarbon Law forced American IOCs to unwillingly accept Chávez's decree because of their restrictions elsewhere. Second, from Chávez's perspective, this law was one of many to update the antiquated and colonialist Venezuelan legal and judicial system. Since Chávez viewed petroleum as a public Venezuelan good, allowing MNCs to tap and sell their resource abroad was seen as a mercantilist form of imperialism. There would be two ways to combat this: raise taxes on MNCs to replace their activities with PDVSA-backed initiatives or simply expropriate MNC infrastructure. Ultimately, Chávez decided to pursue both paths, but at different times. This dissertation will first analyze the

Hydrocarbon Law of 2001, and how it was a first step to increase taxes on oil companies operating in Venezuela.

As part of the Hydrocarbon Law, the new royalty structure would increase the tax of extracted petroleum from 16.6% to between 20% and 30%, rendering oil extraction for many MNCs operating in Venezuela, such as Conoco, Chevron, and Phillips Petroleum, largely unprofitable (Lifsher 2001). Conversely, because of these disincentives for petro-companies, Venezuela can potentially lose out on much-needed revenues, as petroleum in 2001 accounted for 80% of Venezuela's exports. From the perspective of any IOC extracting petroleum in Venezuela, it is in their best interest to grumble and threaten to leave the country. Mazhar al-Shereidah, an oil economist who worked on Venezuela's petroleum committee who studied the Hydrocarbon Law, stated, "if I am a giant multinational, and I hear the terms are going to change, then it is in my interest to foment criticism, to say I am going to go away" (Forero 2001, quoting al-Shereidah). The incrementalization of taxes contributed to government-MNC strife, but more importantly, it gave the government in Caracas a view into how much IOCs could resist before they pull out of the country. This incremental strife is consistent with point three in *Table 1*. Tax hikes, such as these, are a delicate balance of increasing government revenue without pushing out potential taxpayers; in contrast with what the reader will observe in Tanzania, the Venezuelan government chose to increase taxes on IOCs rather than outright seize IOC petroleum.

On one hand, government officials pointed to the increase in revenue from the tax hike. In the government's eyes, these rents were guaranteed because Venezuela's vast resources will always lure foreign MNCs to operate in the state (Forero 2001). Since

Chávez's administration had promised to funnel oil money to improve the lives of the poor in Venezuela, the government counted on high taxes to fund education, sanitation, healthcare, and infrastructure projects. On the other hand, oil prices can drop. And if prices fall and investment by MNCs drop, then the Venezuelan government is looking at a 'shrinking pool of resources' (quoting Sondra Scott, Forero 2001) on top of a society dependent upon petroleum extraction.

Luckily for Chávez, two things happened. First, oil prices remained high for the next few years, reaching record-breaking levels in 2008. Due to skyrocketing oil prices, while IOCs complained and grumbled about the tax hike from 2001, they still managed to stay in Venezuela for the time being, as they were buffered by higher prices per each barrel of oil that was extracted. Second, the United States became embroiled in the Iraq War, beginning in 2003 and continued for eight years. Wars consume a lot of petroleum, and the Iraq War was no different—especially since Iraq is a major oil producer (e.g., Downey 2009). These factors greatly contributed to higher world oil prices. As mentioned above, the post-9/11 world also saw an increase in demands to diversify American oil supply, meaning that if the US wanted to depend less on Middle East oil, it would have to rely more on other states, especially nearby Venezuela. While many MNCs threatened to leave Venezuela due to the 2001 tax hike, they were clearly more encouraged to stay, for the time being, because of higher oil prices. Paradoxically however, in petroleum-rich resource curse states, increases in petroleum prices point to higher levels of governmental-MNC strife.

The post-9/11 world coincided with an unprecedented upswing in oil prices, shooting up to over $140 per barrel in 2008 (Read 2008) from the $30 per barrel the

world saw in 2003 (Jackson 2016b). *Prima facie*, the reader may consider such an increase in prices a blessing for Venezuela. However, as is often the case with resource curse states, the opposite occurred. With rising oil prices, in 2007 the Venezuelan government began setting demands that foreign companies develop outlines to reduce their roles in extracting Venezuela's resources (Hays & Otis 2007). The government furthermore began taking a majority stake, sometimes as high as 60% (Crooks 2017), in some of the country's largest petro-projects, in an effort to combat what Chávez called US imperialism (Miller Llana 2008).

After taking majority stakes in oil fields, as oil prices soared in 2007, Chávez sought to have MNCs operating in Venezuela turn oil projects over to PDVSA, claiming that Caracas had the right to a greater share of petro-profits than oil companies. In response to this action, ConocoPhillips[28] walked away from their investments in Venezuela, writing off their $4.5 billion losses in the country (Hays & Otis 2007). The combination of these increasingly harsh measures incentivized ExxonMobil to also walk away from a potential $25 to $30 billion oil project. From the perspective of IOCs, the costs of caving to government pressures in Venezuela set a precedent for other states to adopt similar policies that would further hinder their operations abroad (Hays & Otis 2007, quoting Patrick Esteruelas). Conversely, resisting government pressures simultaneously emboldens other MNCs to follow suit (Miller Llana 2008). Even though

[28] ConocoPhillips, as the name suggests, is a merger between two oil giants, Conoco, Inc. and Phillips Petroleum Company. Beginning with the merger between BP and Amoco in 1998, a wave of consolidation spread across the petroleum industry, as other international oil companies were forced to compete with the new oil conglomerate (Yergin 2012:90). As Yergin notes, such large-scale consolidation practices are nothing new to the oil industry; indeed, these strategies are what John D. Rockefeller used to consolidate his power over the then-nascent industry (2012:88-89).

ConocoPhillips and ExxonMobil drew a line in the sand regarding the Venezuelan government, earlier that year, they had already turned over operations to PDVSA "under a decree issued by Chávez, a critic of the Bush administration and the years-old contracts giving foreign operators majority control over Orinoco projects" (Miller Llana 2008). While talks were expected to continue, when prices rose, MNCs lost bargaining power—and profits—in Venezuela.

Chávez began implementing these measures in 2007 likely for two reasons. First, as previously mentioned, oil prices soared in the mid-2000s. Second, these measures took effect *after* many IOCs invested in petroleum extraction and transportation infrastructure in Venezuela. By reducing the stakes IOCs hold over oil fields, the Venezuelan government essentially decreases their profits, despite the overhead infrastructure costs IOCs incurred to implement upstream petroleum production.[29] In 2000, the French petro-giant, Total, began upstream and downstream development of the Orinoco Belt, building terminals, derricks, and pipelines that produced approximately 200,000 barrels per day. However, within one year of Chávez's reforms, Total saw its stake in Venezuelan Sincor oil—a heavy crude located in the Orinoco Belt—drop from 47% to 30.3% (Total 2008). As part of the government's deal, they had to turn over operations to PDVSA, despite their investments in infrastructure before this legislation took effect. According to Total, they were not alone in suffering losses. Statoil, now Equinor, the Norwegian oil company that also invested in upstream petroleum production, also saw its stakes fall from 15% to 9.7% (Total 2008). While Chevron kept its 30% interest in Venezuela's Hamaca oil, it

[29] Upstream production is an industry term denoting all projects taken to discover and extract petroleum. Midstream refers to all refining and processing practices to mold crude petroleum into useable products. Downstream processes are transportation-related endeavors, such as pipelines, moving processed petroleum from one location to another.

was no longer the operator of the hydrocarbon plant. Only BP maintained its 16% interest in Cerro Negro petroleum, also in the Orinoco Belt (Hays & Otis 2007).

Venezuela's resource nationalism has been met not only with resistance but also with lawsuits. ExxonMobil, for example, was unable to come to terms with the Venezuelan government regarding the value of its petroleum assets. In doing so, they demanded arbitration to settle, which would freeze the government's assets abroad, effectively guaranteeing that PDVSA would have the cash to cover ExxonMobil if they won in arbitration (Miller Llana 2008). By suing the Venezuelan government in American, Dutch, and British courts, ExxonMobil used this as a negotiation tactic to pressure the government into extracting a higher value per barrel of petroleum (Miller Llana 2008, quoting Roger Tissot). Due to the internationalization of petroleum trade, ExxonMobil has such recourse available in times of crisis. Used sparingly, such options work in the IOC's favor. ExxonMobil went on to win the arbitration case and froze $12 billion of Venezuela's global assets. This IOC's bold stance against the Venezuelan government may inspire other MNCs, however:

> …it has to be acknowledged that although at the upper end of the cycle of resource nationalism the host state might get away with anything under the banner of 'oil sovereignty,' it cannot be said that the rule of law is irrelevant or has no use or value. The rule of law is always an elixir in times of crisis of resource nationalism or beyond. Having recourse to it is up to the victims. Political considerations may prevail over the application of the rule of law in practical exigencies as mentioned above. However, the rule of law could operate as the sword of Damocles hanging over the perpetrator (Maniruzzaman 2009:89).

Paradoxically enough, the sword of Damocles hangs over oil companies when prices are at their highest. With drops in energy prices, oil companies may not resist government actions with such vigor, though they may consider this a breach of their

rights. As Maniruzzaman notes, the rule of law can 'proceduralize conflict' making inevitable changes smoother (2009:89-90). Meanwhile oil and gas MNCs must contend with undulating changes in bargaining power due to exogenous factors, such as the changes in world price of petroleum.

World oil prices could not remain high forever. And by the time they came crashing down in 2009, it was too late for Venezuela to recover. Economically, Dutch Disease took over the oil-reliant government. Whereas in 2001, petroleum accounted for 80% of Venezuela's exports, currently, petroleum accounts for 91% of all exports (OEC 2018c), indicating that Venezuela has done a poor job of diversifying its economic structure and exports. As is often the case in resource curse states, sudden increases in oil prices equate to equally abrupt surges in government spending. When prices plummet, as they did in 2009, governments are left with an overdeveloped petroleum industry that suddenly is generating less than half of the revenue it used to provide. Meanwhile, this petro-overdevelopment marginalized formerly less profitable industries, such as agriculture and tourism. These other industries were vital aspects of the Venezuelan economy in the 1970s that diversified government revenue and the broader economy. However, the focus on petroleum stunted the growth of these industries during the oil boom years.

Perhaps the most recognizable change in Venezuela due to the oil boom and Chávez's response to it is that it "has fostered a rentier and clientelistic mentality among Venezuelans" (Wilpert 2003). In this sense, rent seeking has become the 'central organizing principle' of life in Venezuela, perpetuated by the 'ossified political institutions' that so entrenched both the people and the government (Karl 1997:184).

As cultural anthropologist Fernando Coronil further notes, the oil wealth the Venezuelan government enjoys that can cover the costs of any project at no cost to the populace makes them appear to have 'magical powers' to the destitute poor (Wilpert 2003, quoting Coronil 1997:4). Operating in concert with the Venezuelan peoples' attitudes toward the government is the Venezuelan military. Being a former lieutenant colonel, Chávez was comfortable deploying government troops to enforce some of his 2007 reforms, even at the point of a gun if necessary (Crooks 2017). As we saw, two US companies, ExxonMobil and ConocoPhillips, walked away from their investments in Venezuela and ended up winning their lawsuits. However, what happened to the others that decided to stay despite the troops, oil reforms, and tax increases?

As Chávez handed PDVSA majority stakes in many developed oil fields in the Orinoco Belt, some companies still managed to maintain somewhat profitable operations, including Statoil (Norwegian), ENI (Italian), Total (French), Chevron (American), BP (British), and Repsol (Spanish). Rather than call it quits, these companies determined that retaining minority stakes was still a better option than leaving altogether, hoping prices would rise. To be sure, the only reason why these MNCs would reach such conclusions is because they already invested millions in infrastructure, labor, and administrative projects in Venezuela. Chávez must have known this, and was betting that these companies would stay even with minority stakes. Chávez must also have known that PDVSA had neither the resources nor technology to extract and refine the billions of barrels of petroleum reserves in the Orinoco Belt. As a result, he had to rely on MNCs to put the infrastructure there, and only then claim majority stakes and present them to PDVSA. But as we will see, ham-fisted approaches characteristic of populist governments seeking to restructure

the economy are met with strong backlash, not only from IOCs, but also from foreign investors and foreign banks.

The fundamental problem is that PDVSA is not just an NOC. In the words of Venezuelan energy economist, Francisco Monaldi, PDVSA is not a company; it's a set of fiefdoms (Crooks 2017, quoting Monaldi). Sometimes it even operates in a vacuum and against Chávez's wishes. This is evidenced by the Venezuelan president's actions against PDVSA in 2002 when workers went on strike to try to force Chávez from office. In response to this, he fired 18,000 out of the 40,000 PDVSA employees, including many senior managers. Chávez then stuffed the nationalized company with tens of thousands of party loyalists (The Economist 2012). In this two-month strike, not only did mid- and high-level employees leave PDVSA, bringing production to a standstill, oil ships also joined in the strike, leaving Venezuela unable to export its petroleum. In the immediate aftermath of the strike, PDVSA production plummeted from 3.1 million barrels per day to only 100,000, and the only reason it did not drop to zero was to maintain pressure in their system and pipelines (Alvarez & Fiorito 2015:15).

As a nationalized oil company, PDVSA does not operate in unison with a unified vision. Instead of simply supplying petroleum and delivering rents to the government, PDVSA has become a social engineering project for the Venezuelan government. In a rare display of ingenuity, Chávez actually combined many of PDVSA's goals as being more involved in the development of social programs for the Venezuelan people, and not just oil exploration and production. By doing so, he maintained a tighter grip over his main supply of revenues as his constituency becomes even more dependent upon both Chávez and petroleum. In this sense, PDVSA is a *de facto* 'social and developmental

ministry' (Monaldi 2018). This development ministry soon began losing valuable revenue once oil prices bottomed out, leaving the Venezuelan economy and people in free-fall. Chávez was fortunate to die right before oil prices plummeted. He was seen as a savior in the eyes of many Venezuelans due to how PDVSA invested oil profits in social service programs. However, after oil prices dropped and with Chávez dead, there were no hints that the economy would recover.

Continuity has not improved since Chávez's very timely and opportune death, given the drop in oil prices since he passed away in 2013. His successor, Nicolás Maduro, appointed Major General Manuel Quevedo as chair of the PDVSA, though he is a career soldier with no apparent interest or aptitude in the energy field. As Quevedo sets in, PDVSA is facing another issue—it cannot repay its loans to the China Development Bank, and access to credit is drying up (Myers Jaffe 2018). Oftentimes, debt to Chinese and Russian investors is paid for in free petroleum. The present work will show below how these troubles have compounded, as Venezuela also has to face non-petroleum multinational investors.

Despite the bleak outlook of the Venezuelan oil industry, there is some good news on the horizon for PDVSA and its relations with other MNCs and outside investors. Notwithstanding the fact that Venezuela cannot feed its people,[30] it is still the country with the largest oil reserves. This has incentivized some companies to invest in Venezuelan bonds, as Goldman Sachs controversially did for $2.8 billion in 2017 at 31 cents on the dollar (Wigglesworth 2017; Myers Jaffe 2018). This move has raised

[30] When Venezuela ran out of bread, Maduro's government figured that bakers were the problem, beginning to detain them and forcing bakers to stop producing croissants (Wyss 2017).

eyebrows that Wall Street is exploiting the resources of the Venezuelan poor for its own gain. Furthermore, some in Washington, especially US Senator Marco Rubio, are uneasy that Goldman Sachs is providing a cash infusion to an increasingly despotic government (Wigglesworth 2017). However, just five days after Goldman Sachs invested in PDVSA, Maduro stated that the government is planning on restructuring their bonds, indicating that they will not honor some foreign investments. This would translate to a $54 million loss in less than a week for Goldman Sachs (Wigglesworth 2017). Maduro's bait and switch would likely be met with even more expensive lawsuits against the Venezuelan government whose only lifeline is oil exports. Additionally, if strife between Maduro and investors continues, this lifeline may be "vulnerable to seizures from litigious creditors" (Wigglesworth 2017). Complicating matters is that the Venezuelan government does not only experience strife with other IOCs and Wall Street investors, but also with allied governmental banks.

The China Development Bank (CDB), a state-owned institution, has been happy to lend Venezuela money, which Maduro must repay in petroleum. However, in 2016, Venezuela paid only a fraction of the required petroleum back to China. The CDB invested $60 billion in Venezuela, but the 450,000 barrels per day that Venezuela returned to China is not only less than half of the volume the Chinese expected, it is barely enough to cover the interest payments on Venezuelan loans (Myers Jaffe 2018, quoting Energy Intelligence Group). Complicating matters is that allegedly, some of the petroleum delivered to China is so poor in quality that it is being sent back as unacceptable payment for loans (Myers Jaffe 2018). Venezuela has to additionally face the fact that most of the oil PDVSA produces is being sent to China, Russia, and India

rather than generating cash flow at home due to these sorts of loan agreements (Monaldi 2018). This, of course, leaves the heavily oil dependent population of Venezuela without access to their only lifeline out of poverty.

Multiplying Venezuela's worries is that PDVSA has also not made debt payments to India's nationalized oil company, the Oil and Natural Gas Corporation (ONGC). According to Verma (2017), PDVSA has made no payments "on what was a $540 million backlog of dividends owed to ONGC for an investment the Indian firm made in an energy project in Venezuela." The Indian buyers of Venezuelan oil often pick up petroleum on a 'free on board' basis, meaning that they have immediate ownership of the petroleum upon pickup (Myers Jaffe 2018). Venezuela has furthermore used intermediaries, such as Russian banks and other Indian energy companies to repay foreign loans. However, if PDVSA cannot pay its loans, there are only two options. First, produce more petroleum and ship it to India, Russia, and China hoping that oil prices will rise. Yet, with the advent of US fracking, tar sands becoming available in Canada, Arctic drilling in Russia and Norway, green energy alternatives, and a slumping Chinese economy, prices may remain low for a while. Otherwise, Venezuela has only one more option: PDVSA would have to default. Credit rating companies have noticed this path, leading Fitch, Standard & Poor's, and Moody's to downgrade PDVSA's ratings, suggesting that a "default or default-like process has begun" (Guzman 2017).

Interestingly enough, when oil prices slumped throughout the years of the Great Recession, MNCs in Venezuela have been oddly silent. While they are taking a hit due to lower oil prices, it is in their best interest to continue operating as usual while the Venezuelan government balks and mismanages their resources. IOCs have naturally not

invested more in Venezuela for fear of expropriation and higher taxes, but they seem to be playing the long game and continue producing until oil prices rise again. Again, this change in strife between the government and MNCs is due mostly to resource-specific issues, in this case, the price of petroleum and Venezuela's complete dependence upon it. This case study has also shown an increasing internationalization of government-MNC strife in Venezuela, with this discord reaching well beyond the petroleum trade and involving bankers and investors in the US, Russia, China, and India. As *Table 1* predicts, we also observed IOCs fighting back—and winning—with lawsuits against the Venezuelan government, with impartial international courts siding with IOCs.

Next, this work will analyze governmental-MNC strife in a diamond-producing state, Tanzania, illustrating how their challenges are fundamentally different from Venezuela's due to the resource they possess. This dissertation will also observe emerging patterns among the eight different characteristics in diamond- and petroleum-rich states.

The Case of Tanzania

Tanzania is the tenth largest producer of diamonds in Africa behind a few other resource curse states, such as Angola and Sierra Leone. Other states, such as Lesotho, South Africa, and Botswana, either because of strong institutions, better resource management, or more diversified economies, are not considered to suffer from the resource curse. Some diamond states experienced a surge of MNCs extracting diamonds after a war and with UN oversight, such as in Sierra Leone. In other cases, diamonds do not lead to government-MNC strife. For example, in a case study of Ghana, Snyder and

Bhavnani (2005:564) note how diamonds did not escape the clutches of the government, thereby bringing little governmental-MNC strife. Other states, such as Robert Mugabe's Zimbabwe, have dealt with notoriously authoritarian regimes, with Mugabe even winning the Zimbabwean lottery in 2000 (BBC Africa 2000). This alarming government corruption hinders foreign investment in diamonds, leading to, if nothing else, less government-MNC strife. Despite strife in other diamond states, Tanzania offers a tailored case for study due to their reliance on one specific mine—the Williamson Diamond Mine. Before analyzing government-MNC strife in Tanzania, it is useful summarize Tanzania's history.

Tanzania has managed to escape many, but not all, of the ills that have befallen other resource curse states in Africa. While the British colonized part of Tanzania until 1961, unlike other African states, it never had to fight for its independence. Tanzania was originally composed of two different colonies—Tanganyika, located on the African mainland and colonized by the British, and the Sultanate of Zanzibar, which was originally colonized by Omani settlers, then the Portuguese, and later occupied by the British as a separate colony. Eventually, in 1964, both colonies were combined into one sovereign state—Tanzania.

Britain granted Tanzania independence in the 1960s, but this did not indicate any level of development, for Tanzania's independence, in the words of its first Prime Minister, Julius Nyerere, was only a political independence. This political independence allowed Tanzania to make its own decisions but largely kept the colonial economic and social backbone that had previously existed in Tanzania (Nyerere 1972). Consequently, the largest exports after independence were raw materials based on the needs of former

colonialists. Although Tanzania originally exported commercial crops, eventually, precious metals, especially gold, but also diamonds, came to occupy a larger percentage of the national economy. Currently, the mining sector accounts for 41.8% of exports, with gold taking the lion's share of exports at 35% (OEC 2018b). The mining sector accounts for four percent of Tanzania's GDP (Ng'wanakilala 2017). Partially because of this, the Tanzanian government developed its own nationalized mining company, STAMICO, though it is not as powerful as other nationalized industries in Angola and Russia.[31] Additionally, Tanzania is a signatory of the Kimberley Process, denoting that the government seeks to reduce the trade of illicit conflict diamonds (Yager 2012:41.1). While artisanal mining—of all minerals—accounts for 670,000 jobs in Tanzania, employment in MNC-operated mines hires only 12,000 workers (Engineering & Mining Journal 2012; Bank of Tanzania 2013:42, 48; Yager 2012).

Currently, Tanzania possesses one very large diamond mine that produces the majority of its diamonds. The Williamson Diamond Mine, also called the Mwadui Mine named after its location, was the first such mine to be discovered outside of South Africa. This mine is a major component of the second largest exploitable kimberlite pipe in the world. As mentioned in the literature review, kimberlite pipes, such as the Williamson Diamond Mine, are formed from volcanic eruptions when diamonds in the earth's mantle are forced upward to the surface in igneous-type rocks, called kimberlite.

A Canadian geologist, Dr. John Williamson, who the mine is named after, began extracting gems south of Lake Victoria in 1940, rendering this location one of the oldest continuously operating mines in existence (IDI 2018). This mine has produced some of

[31] Importantly, Tanzania's STAMICO is a nationalized *mining* company, indicating that its focus is not limited to only diamonds but also to gold and coal.

the most impressive stones in the world, and is especially famous for rare pink diamonds. Perhaps its most remarkable diamond is the Williamson Pink Diamond,[32] a 54-carat flawless pink stone, which was given to then-Princess Elizabeth for her marriage to Prince Phillip in 1947 (Treble 2012). This mine has also produced a 388-carat giant diamond in 1990 (IDI 2018). In the past, the mine produced about thirty carats of diamonds per hundred tons of kimberlite. However, recently net gains are down to six carats per hundred tons, pointing to a decrease in the efficiency of the mine (IDI 2018). Including reserves, the mine's gross diamond resources are expected to be at 39 million carats as of 2012 (Mining Technology 2018b), signifying that while many incredible gems have been extracted from the mine, it still remains a profitable enterprise for large multinational companies to exploit. However, due to the decrease in the kimberlite to diamond ratio, artisanal diamond mining would likely be unprofitable as a strategy for economic generation.

By the 1950s, Williamson Diamond Mine contributed to about three percent of the colony of Tanzania's GDP and accounted for around fifteen percent of its earnings (Lemelle 1986). John Williamson died in the late 1950s, and De Beers bought out the mine in an equal partnership with the government of Tanganyika—the precursor to Tanzania before independence and merger with Zanzibar (Chachage 1995). De Beers operated the mine until 1973, and then STAMICO, Tanzania's state mining organization, controlled the mine until 1993 (Mining Technology 2018b). Once again, De Beers seesawed back and gained 75% ownership of the mine until 2009, when it decided to sell interest in the mine to Petra Diamonds, who currently owns 75 percent of the mine, with

[32] It is even rumored that this giant pink diamond is the inspiration for the 1963 hit, *The Pink Panther*.

the Tanzanian government retaining the other 25 percent (Mining Technology 2018b; Tanzania Invest 2018). More recently, the mine produced 202,000 carats in 2015, with Petra having plans to increase this production to 350,000 carats by 2017 (Tanzania Invest 2018).

As the Williamson Diamond Mine changed hands from one operator to another, Tanzania has developed its own state mining corporation, STAMICO, formed in 1972. In its nascent years, this diamond mining company struggled financially. By the late 1970s, the Tanzanian diamond industry was operating at sub-par capabilities, especially in the face of higher oil prices and a cash-strapped economy. In response to this, the government established the Mining Act of 1979, allowing "Tanzanians to register mining claims in areas designated for prospecting and mineral mining and to engage in mining activities that did not require large investment expenditures and specialized equipment" (Bryceson 2013:16). Throughout the 1980s and 1990s, STAMICO went through various economic policy reforms overhauling the previous modes of operations (Stamico 2018). This allowed for artisanal diamond mining to continue, but also allowed for consolidation, meaning that small firms had to compete with larger foreign conglomerates in the mining industry (Butler 2004; Emel & Huber 2008; Bryceson 2013). Increases of foreign investments marginalized artisanal diamond mining in Tanzania, resulting in criticism of the government's capacity of controlling its natural resources effectively (Bryceson 2013:16). While larger corporations can extract diamonds at faster and more efficient rates than artisanal diamond mining, there is significant evidence that ADM may reduce poverty rates in Africa (Fisher et al 2009),

with significant increases in wages and economic development among rural communities (Dreschler 2001).

Partially due to increasing dissatisfaction with the government's handling of Tanzania's minerals, in 2009, the same year Petra Diamonds took over the Williamson Diamond Mine, the Tanzanian government passed a New Mineral Policy, replacing the 1997 legislation and heightening the intention of Dar es Salaam to participate in future mining investments (Stamico 2018). The New Mineral Policy of 2009 is largely (foreign) investor-friendly, but it does extend artisanal mining licenses from five years to seven years. It also renders it more difficult to obtain speculative mining licenses, restraining the practice of large corporations seizing exploration licenses without extracting diamonds. With large swaths of kimberlite pipes bought out by foreign investors, artisanal diamond miners were further marginalized (Bryceson 2013:17). However, the new legislation would hope to curtail such practices to incentivize a labor-focused approach to diamond mining, as shown in *Table 1*. Following in the footsteps of the new Mineral Policy, the Mining Act of 2010 provides "for free-carried interest in mining ventures for the Government [… and] STAMICO is earmarked to oversee the Government interests" (Stamico 2018). By 2012, the government "issued new regulations requiring all foreign-owned mining companies to cede 50% of their shares in their Tanzanian operations to the Tanzanian public" (Yager 2012:41.1). This fifty percent threshold could be met by handing over half of the shares to STAMICO or by listing half of the company's shares on the Dar es Salaam Stock Exchange and selling operation's shares to the Tanzanian people (Kabukuru 2013:48-49). This is not a bona fide expropriation of resources, but MNCs are likely to resist such governmental

encroachment. From the Tanzanian government's perspective, subsoil minerals, such as diamonds, are the property of the Tanzanian people. Yet, MNCs expect that because they bought the land to extract resources, then the diamonds belong to them. The 50/50 split seems to be fair only if each party contributes to half of the work.

There will always be some resistance between mining companies and national governments. On one hand, governments fear that MNCs will extract their resources and export them without paying royalty fees. On the other hand, companies fear that they may be held hostage by unhappy and cash-strapped governments. Yet, as previously mentioned, Petra Diamonds holds 75% of the shares of the Williamson Diamond Mine, while the government owns the other 25%. Additionally, in 2012, the Tanzanian government sought to split in half mining operations. Petra Diamonds managed to escape this law, still holding on to 75% of its share of the Williamson Diamond Mine, while simultaneously remaining listed in the London Stock Exchange, establishing itself as London's 'largest quoted diamond mining group' (Petra 2018) with no hint of shares being sold in the Dar es Salaam Stock Exchange. After John Magufuli was elected in 2015, he cited, perhaps correctly, 'irregularities' in the process by which Petra Diamonds held on to three quarters of the Williamson Diamond Mine (Davies 2017). Petra, conversely maintains that all business conducted in the mine has been in compliance with Tanzanian legislation (Hume & Megaw 2017). Tense relations then came to a head, when the Magufuli administration confronted Petra.

In 2017, the nationalist government of John Magufuli seized millions of dollars worth of diamonds bound for Antwerp, Belgium at the Dar es Salaam Airport (Kazeem 2017). While the government claimed that Petra Diamonds, the operator of the

Williamson Diamond Mine, was undervaluing the value of their resource, Petra asserts that this seizure of the 71,600 carats[33] of diamonds was unwarranted. While Petra states that the value of the diamonds was estimated at $14.7 million, the government of Tanzania believed the diamonds to be worth much more, around $29.5 million, indicating that royalty fees to the government ought to have been higher (Kazeem 2017). In a statement released by the government, Tanzania's Finance and Planning Ministry declared that among "the legal action to be taken include the nationalization of all the diamonds seized after it was established that there was cheating involved in declaring the actual value of the minerals" (Ng'wanakilala 2017). As the government issued this statement, they also arrested the officials involved in the shipment and halted the export of diamond shipments from Petra while ordering an investigation to accurately value the diamonds. According to the Tanzanian government, the state is losing around $46 million to under-cleared diamond exports through the Dar es Salaam Airport (Ng'wanakilala 2017, quoting Tanzania's Finance and Planning Minister, Philip Mpango).

From Petra's perspective, they declare that their business is conducted in an honest and transparent manner, yet after this incident, Petra's shares fell seven percent in a day (Rukmangadhan & Shabalala 2017). By the end of the week, their shares had fallen an additional 17 percent, wiping around $160 million from the value of the company (Kottasová 2017). After a four-day shutdown, Petra eventually resumed activities in the Williamson Diamond Mine, albeit with hesitation. Their chief executive, Johann Dippenaar, stated, "we won't be stupid and just keep on pumping in money if it's clear it

[33] For comparison's sake, and noting the sheer lootability of diamonds, 71,600 carats weighs 31.57 pounds, is worth tens of millions, and can be easily carried by one individual. Conversely, less than 5 gallons of crude oil weigh 31 pounds, worth slightly over eight dollars.

will come to naught" (Sanderson 2017). This is especially true because Petra Diamonds has a net debt of $555 million and their banking covenants could be breached if it cannot resume exporting diamonds by the end of the year (Sanderson 2017). Compounding governmental-MNC strife is that Magufuli's administration levied a value-added tax (VAT) on minerals, and though Petra's debt is large, it is expecting delays in receiving their VAT refunds from the government totaling over $15 million (Rukmangadhan & Shabalala 2017).

These governmental moves are generally aimed at foreign mining companies operating in Tanzania, with Petra Diamonds being the largest such corporation. Yet they were not the only operators adversely affected by Magufuli's nationalist shutdowns. Acacia Mining, a gold mining company in Tanzania headquartered in London, was forced to shut down production after the government banned gold and copper concentrate exports (Rukmangadhan & Shabalala 2017). In July 2017, the government also levied higher royalty fees and imposed another clearing fee on mineral exports (Kottasová 2017). Nonetheless, the largest hit to Acacia was an unsuspected blow by the Magufuli administration, fining Acacia $190 billion, "worth two centuries of the firm's revenue or four times the size of Tanzania's GDP" over allegedly unpaid taxes and accumulated interest (Kazeem 2017).

While Magufuli's decisions are largely oriented as populist-esque tactics to gain domestic support, they leave mining companies with little choice but to negotiate or leave. As Dan Paget writes, "until the tax bill was tabled, it seemed as though Magufuli wanted a new settlement with the mining companies. Now it looks as though he wants new mining companies" (Paget 2017). From Magufuli's perspective, mining companies

in Tanzania have had an easy ride. While many of them export billions worth of diamonds, in the past, they have only had to pay an 8% tax on these minerals (Forstater & Readhead 2017). Mining companies have had 'golden tax deals' in the words of Forstater and Readhead (2017), but the government's findings are hard to believe. For a $190 billion fine, the scale of hidden mineral exports would have to be huge, suggesting that Tanzania would be the world's largest mineral producer although, in fact, they are Africa's tenth largest producer. It is unclear if MNCs, such as Petra, have engaged in what the government calls 'economic sabotage' (Sanderson 2017), however, Magufuli's administration undid their harm by exaggerating Tanzania's mineral wealth. Even though the Tanzanian government still holds 25% of shares of the Williamson Diamond Mine, it is investigating whether or not to repossess the mine in its entirety (Materu 2017). The investigation is ongoing, though Petra has resumed operations in the Williamson Diamond Mine.

Analysis

This section will briefly compare and contrast the differences in government-MNC strife in Venezuela and Tanzania, referring back to *Table 1*. There are a few key points that should be further emphasized regarding the eight different characteristics of government-MNC strife in Venezuela and Tanzania. From the perspective of the resource curse analyst, Venezuela, as a petro-state, offers some acute insights into the peculiar curse oil states may face. First, as the first row of *Table 1* explains, governmental-MNC strife is rampant throughout the time period analyzed. Every government decision reflected the price of petroleum at the time and was met with resistance from MNCs, who

perceived it as encroachment and responded accordingly. The revealing aspect of this strife is how it changed due to bargaining power shifts between the government and MNCs.

As observed from the analysis above, Venezuela was more tempted to raise taxes and claim larger stakes *after* MNCs invested in the state, as the sixth row of *Table 1* explains. While these actions may be inspired by the raising prices of petroleum, the government was also incentivized to raise taxes and claim majority stakes because MNCs already funded infrastructure projects in oil fields—the government only needed to nationalize this infrastructure. Notably, once IOCs began extracting petroleum, the Venezuelan government also had more access to information—Caracas knew how much petroleum was produced, to what extent it had to be refined, what type of petroleum was being extracted, where it could be transported to, how much it would sell for, how much labor and capital was necessary to undertake the project, and an estimation of barrels in reserve. This asymmetric shift in governmental knowledge would also tempt petroleum-rich resource curse states to raise taxes and stakes on MNCs working in-country, as Venezuela did throughout Chávez's and Maduro's tenures, thereby leading to incremental strife, according to the seventh row of *Table 1*.

Conversely, when prices dropped, the Venezuelan government was forced to seek capital from whatever avenues were available, as depicted in point 5 of *Table 1*. Ranging from Chinese loans to paying Russia with petroleum, PDVSA had to make ends meet with whatever oil they had, naturally leaving the Venezuelan people with less petroleum, and, as *Table 1*'s point 3 suggests, lending strife an international component. Notice how when oil prices dropped, governmental-MNC strife not only affected oil companies, but

also spread to non-petroleum industries, such as investors and banks, congruent with point 4's inter-sectional strife of *Table 1*. Strife with foreign MNCs also ends up hurting not only Venezuela and PDVSA's credit rating, but also their respect abroad. In a sense, this strife is perhaps worse than governmental strife with oil companies. Investors, banks, and foreign countries permeate into many different aspects of Venezuelan life in both foreign and domestic capacities. IOCs meanwhile had the opportunity to counteract decisions made in Caracas by suing the Venezuelan government in international courts, as reflected in the eighth row of *Table 1*.

As observed from the case of Venezuela, IOCs faced strong governmental opposition when prices soared as Chávez attempted to capture a higher percentage of petroleum rents. However, when prices dropped, IOCs, though losing money, had fewer worries *vis-à-vis* the government. This would not be as likely in diamond-rich resource curse states, since the price of diamonds is significantly more stable. The steadily increasing price of diamonds would incentivize governments to take a steady, long-term view of their resource. Throughout the same period of analysis (1980 to present), huge spikes and troughs in the price of petroleum are common, usually due to embargoes, OPEC quotas, wars, and advances in technology (e.g., fracking). The unpredictably erratic price of petroleum compels governments to sacrifice long-term wins for short-term gains, increasing strife, not only with IOCs, but also with investors and foreign banks.

Compounding problems for petroleum-rich resource curse states is that more often than not, their economy depends on the export of oil, as point 2 in *Table 1* suggests. This is not the case for diamonds. Many diamond-rich resource curse states may extract

diamonds to diversify their economy or provide jobs for low-income residents, but it is not their lifeline out of poverty. Because of this, while government-MNC strife may exist, it is not nearly as pervasive and ubiquitous as in petroleum-rich states.

When looking at Tanzania, government-MNC strife differs strikingly from Venezuela. First, while the Williamson Diamond Mine is one of the oldest continuously active diamond mines in the world, strife between the government and Petra only began in 2015 and peaked in 2017. This is denoted as 'intermittent strife' in *Table 1*. The Tanzanian government, through multiple initiatives and legislative priorities has prioritized artisanal diamond mining, which is both an avenue out of poverty for rural communities and a labor-intensive economic project. Nevertheless, government-MNC strife reached a peak when Tanzania seized 71,600 carats of diamonds, worth either $14.7 million or $29.5 million depending on which party is believed. The suddenness of this strife is show in point 7 of *Table 1*. This nationalization of differs slightly from Venezuelan-style nationalism (they took the diamonds rather than the minefield), but the effects are largely similar: the governments believed that MNCs were taking their resource without paying their fair share and thus nationalized the resources. The only differences are that the government of Venezuela sought to nationalize infrastructure while Tanzania took the resource itself. The 'lootability' of diamonds may benefit the government in cases such as these, while oil companies can rest assured that governments will likely not take their product—it's a small comfort though, as the government is then more likely to seize their infrastructure.

Prima facie, it appears as if the Venezuelan and Tanzanian governments are acting similarly. Both states seek to increase the government's power and revenue stream.

The difference is how and when they accomplish this goal. Venezuela cracked down on MNCs when oil prices were high, then when prices dropped, they left oil companies relatively alone, instead having to deal with foreign investors in Russia and China. While initially there was little friction between Venezuela and those investors, once PDVSA could not pay back loans (or even interest on the loans), government-MNC strife invariably began. On the other hand, when Tanzania cracked down on Petra Diamonds, the point of contention was the valuation of the diamonds, and not the price of their final product.

Additionally, why has Venezuela struggled with government-MNC strife for years, yet it was not until a few months ago that Tanzania had significant contention with Petra Diamonds and other mining companies? The *theory of resource curses* would point to how the world economy runs on petroleum, and not on diamonds. Contention could have existed for Tanzania for years, but it only came to a head in 2017. Meanwhile, as Venezuela had to contend with large peaks and troughs in the price of oil, spurring the government to act in a consistently erratic fashion. On the other hand, the Tanzanian government, knowing that the price of diamonds was more predictable, could afford to wait and capture Petra's diamonds when they were least expecting it as *Table 1*'s fifth point predicts.

The reader will notice how the goals of Venezuela and Tanzania are similar, but their actions are different. Venezuela needs rents from petroleum to fuel its rentier state, with social and infrastructure projects dependent upon petro-revenues. When these revenues dried up, this assessment observed the Venezuelan people taking to the streets in protest. However, Tanzania was never dependent upon diamond revenues since they

are not valuable enough to raise the country out of poverty, as shown in point 2 of *Table 1*. Furthermore, in testing *Hypothesis 1*, this observation noticed that Venezuela was targeting the industry to collect rents that would be funneled to social engineering programs while Tanzania would rather rid itself of foreign MNCs and invest in artisanal diamond mining that is much more labor intensive. Venezuela can afford to pay off its constituency with oil rents, but since Tanzania cannot do that, it must instead put its people to work in artisanal diamond mining programs.

This observation saw Tanzania struggling to engage in artisanal diamond mining rather than depending upon large machinery and foreign companies; yet, Venezuela is not attempting similar projects. This is not due to the price of petroleum or the lootability of diamonds, but rather due to the high barriers of entry in the petroleum industry, and the comparably lower barriers in diamond mining. Due to these low barriers to entry, Tanzania can get away with espousing artisanal diamond mining projects that are labor-intensive—as shown in point 6 of *Table 1*—while rejecting foreign MNCs. Venezuela does not have this luxury. Whereas the government of Tanzania has the option of extracting diamonds through artisanal diamond mining, which potentially employs 670,000 people as opposed to the 12,000 jobs foreign MNCs provide (Engineering & Mining Journal 2012), Venezuela can only hope to provide a few jobs for its people. The fundamentally capital-intensive nature of petroleum extraction and refining does not guarantee many jobs for Venezuelans. The results were the government pushing for nationalization and higher taxes. On the other hand, the potentially labor-intensive nature of artisanal diamond mining offers the Tanzanian government the opportunity to push for these incentives, as we saw with their Mineral Policies of 2009 and 2010.

Finally, government-MNC strife in Venezuela took on an internationalized component when Caracas began borrowing money from foreign investors and international banks, with PDVSA incapable of even paying off interest on its loans. Since Tanzania's economy is not dependent upon the diamond trade and the price of diamonds is relatively stable, it never sought to pay off loans with this resource, leading to little internationalization of this strife, as *Table 1*'s third row explains. Moreover, due to the internationalization of the petroleum trade, this industry enjoys a legal space governing processes and practices. For example, ExxonMobil managed to pressure the Venezuelan government into extracting higher values per barrel of petroleum, eventually winning the case in arbitration freezing $12 billion of Venezuela's assets despite the 'primacy of the state' over its resources (Miller Llana 2008). On the other hand, as the fourth row of *Table 1* suggests, Petra Diamonds, as of yet, has not resorted to similar measures regarding the expropriation of the diamonds from the Dar es Salaam Airport. Furthermore, the reader will notice how the Tanzanian government sought to make diamond companies public within the Dar es Salaam stock exchange and selling shares to Tanzanian people (Kabukuru 2013:48-49). Such moves partially keep government-MNC strife as domestic disputes rather than internationalized issues, as point eight of *Table 1* shows.

Testing *Hypothesis 1* illustrates key differences in government-MNC strife among diamond- and petroleum-rich states, painting a rough picture of how these differences may influence processes and outcomes. Government-MNC strife is a process, and not necessarily endemic to resource curse states. Public and private sectors clash in most states; however, for the purposes of this research, resource curse states may experience

different types of government-MNC strife contingent upon the resources they are endowed with, as *Hypothesis 1* sought to illustrate. The next hypothesis seeks to further fill in some of these gaps by illustrating how diamonds and petroleum lead to different resource classes among resource curse states.

Testing Hypothesis 2

Petroleum-rich states are more likely to possess a larger and more powerful elite resource class than diamond-rich states.

Both the petroleum and diamonds trades conjure images of wealthy executives benefiting from the mineral extraction businesses. The differences in both markets reside in magnitude—as has been emphasized, the petroleum industry is much larger than the diamond trade. However, as there are fewer individuals involved in the diamond business, it is uncertain which industry creates more inequality among workers, executives, and the neighboring industries, such as jewelry stores or paint products. *Hypothesis 2* seeks to fill this theoretical gap among resource curse states, predicting that petroleum-rich states are more likely to possess a wealthier, and therefore more powerful, elite class than diamond-rich states. Testing *Hypothesis 2* segregates a state's income inequality from that of the resource in question—diamonds or petroleum—to determine the strength of financial capabilities of a state's resource class. There is an inherent assumption (and risk) in this logic: the greater financial capabilities the resource class enjoys directly correlates to the political power it wields. Given the state of world affairs, the present work views this as a risk worth taking.

Testing this hypothesis dissects income inequality at the product level while accounting for a state's general income inequality along with the aggregate value of the resource produced. The model would have to be recalibrated for states that refine petroleum to account for the added expenditure of the refining process. To measure the resource class this dissertation will use a synthetic control method common in statistics and inspired by Hartmann et al's (2015:9) Product Gini Index (PGI). Hartmann et al (2015) do not create the Product Gini Index *ex nihilo*. They develop this theory from economic development pioneers emphasizing the economic 'structural transformations' resources may produce in a state (Rosenstein-Rodan 1943; Singer 1950; Hirschman 1958). More recently, scholars have also introduced measurements of 'economic complexity' that have expanded scholars' abilities "to quantify a country's productive structure and have revived interest in the macroeconomic role of structural transformations" (Hartmann et al 2015:2; Rodrik 2006; Hausmann, Hwang & Rodrik 2006; Hidalgo et al 2007; Hidalgo & Hausmann 2009; Felipe 2009; Abdon & Felipe 2011; Bustos et al 2012; Caldarelli et al 2012; Cristelli et al 2013; Hausmann et al 2014; Cristelli, Tacchella & Pietronero 2015). As Hartmann et al (2015:2) note, these measures can be predictive of future economic growth, are relevant for social welfare programs, and measure poverty prevention (Bourguignon 2004; Ravallion 2004). Furthermore, the combination of products produced or extracted from a state determine available occupations, strength of unions, and advanced learning opportunities (Hartmann et al 2015:2), potentially contributing to a new middle class in emerging economies[34] (Milanovic 2012).

[34] Interestingly, as Hartmann et al (2015:2-3) note, this may have the opposite effect in

While Hartmann et al's (2015) PGI is a valuable tool for analysts, certain variables must be changed to determine the strength of the resource class, as the PGI is determined by state exports and not state production. If this work were to use Hartmann et al's (2015) PGI in its equations, it would overestimate states exporting a lot of petroleum or diamonds while underestimate states consuming much of their own resource. For example, Nigeria is a resource curse state producing a lot of petroleum, but because much of this resource is domestically consumed, its exports would be comparably lower than if it did not consume its own petroleum. Conversely, a smaller resource curse state, such as Yemen, which consumes relatively little of its own oil, would show a comparatively larger percentage export to GDP ratio. Due to this dilemma,[35] this dissertation alters Hartmann et al's (2015) formula to account for oil and diamond *production*, rather than oil and diamond *exports*.

Largely based off of Hartmann et al's (2015) scholarship, this dissertation develops a formal model to determine the relative strength of a resource class in a state. Formally, we would define each country's *Resource Class* (RC_c) as the following:

$$4.1) \qquad RC_c = \frac{1}{\sum S_{GDP_{cp}}} \sum M_{cp}\, S_{GDP_{cp}} Gini_c \left(\frac{V_p}{D_c}\right)$$

where $Gini_c$ is the Gini Index of a specific country, (V_p/D_c) is the per capita value of the resource produced in a given year, and S_{GDPcp} is the share of a state's production of a

industrialized economies, leading to de-industrialization and de-unionization in highly competitive markets. Many industrial workers in these states may be forced to work in lower paying jobs or may decrease unions' capabilities of negotiating for higher wages (Gustafsson & Johansson 1999; Acemoglu, Aghion & Violante 2001).

[35] In reality, this dilemma influences petroleum producers more than diamond states, as Sierra Leone or Zimbabwe are unlikely to buy too many of their own diamonds. On the other hand, economic development requires the consumption of petroleum, is more likely to be consumed by its producing country.

product divided by GDP. It should be noted here that a state's GDP is partially composed of revenue from their resources as the revenues from *p* production ultimately are counted as a sometimes-large fraction of a state's *c* GDP. This is not a problem in testing *Hypothesis 2*, as this hypothesis does not seek to determine what a state would look like without diamonds or petroleum, but will become problematic and addressed later on in this dissertation. Finally, M_{cp} is equal to 1 if state *c*'s production of product *p* has a revealed comparative advantage greater than or equal to 1, and is 0 if it is not, as depicted here:

$$4.2) \qquad M_{cp} = \begin{cases} 1 & RCA_{cp} \geq 1 \\ 0 & otherwise \end{cases}$$

The binomial operator in this equation forces this work to add a synthetic control method outside of the summation, where $\sum_c S_{GDP_{cp}}$ is equal to the sum of each state's share of production of petroleum or diamonds compared to its overall GDP. In order to calculate M_{cp}, the revealed comparative advantage (RCA) must be accounted for in each specific state. This index is used to calculate the relative (dis)advantage of a state for exporting a specific resource. Similar to S_{GDPcp}, the RCA, in past research, has been used to account for export share of a commodity, but as this hypothesis is analyzing production of a resource, the formula is slightly altered to fit the above conditions. A resource class is determined by production of a resource, and not necessarily by its export. We can define RCA_{cp} and hence M_{cp} as the following:

$$4.3) \qquad RCA_{cp} = \frac{\frac{S_{cp}}{\sum S_{cp}}}{\frac{\sum_p S_{cp}}{\sum_c \sum_p S_{cp}}}$$

where S_{cp} is a state's c production of a resource p and $\sum S_{cp}$ measures the state's entire market value of all goods and services (GDP) in 2014 US dollars. This nominator would allow the analyst to determine the percentage of a state's production stemming from the resource in question, while the denominator would adopt the same formula for world production of the resource in comparison to world GDP. This ratio illustrates the revealed comparative advantage (RCA) of a state per resource. If there is a comparative advantage, meaning that RCA_{cp} is greater than or equal to 1, then the equation continues, otherwise, the answer would be zero.

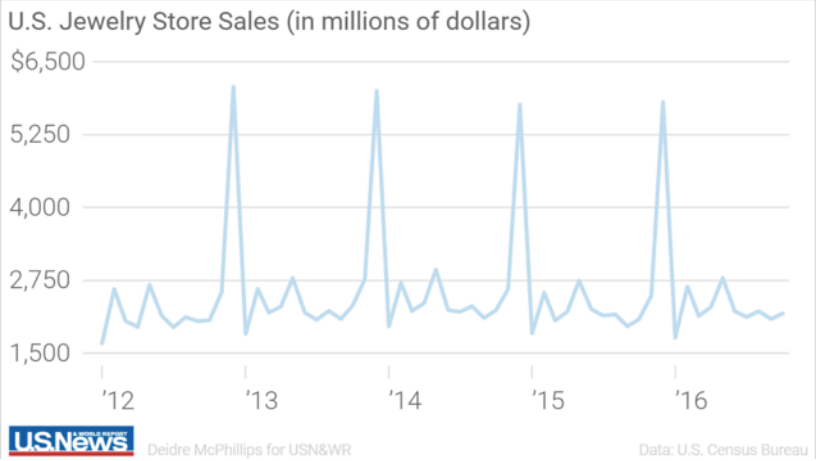
This method filters out economically disadvantaged states that do not produce enough diamonds or petroleum to warrant a bona fide domestic resource class, as their M_{cp} would equal 0; only those with scores greater than 1 would be taken into account. Additionally, the equation multiplies this number S_{GDPcp} by the total per capita value of the resource (V_p/D_c) and accounts for the Gini Index $Gini_c$ to give the analyst the income inequality of the production of the resource. The state's Gini Index then divides this number and the share of the resource in the economy to illustrate the economic vibrancy of the resource class.

Complete information on obtained data from the CIA World Factbook, *Qualities of Governance* Database (Teorell et al 2017), Ross and Mahdavy's (2015) Oil and Gas Dataset, Kimberley Process Dataset, and World Bank Gini Indices can be found in *Appendix 1* of this dissertation. This work adopts the country GDP data from the CIA World Factbook, incorporating mostly 2016 data. Part of the equation above requires collection of diamond and petroleum production in comparison to state GDP. The same holds true for world diamond and petroleum production in order to compare the share of

a state's resource production with that of the world's production. For better or worse, world oil production erratically changes year to year, but at the end of 2016 it reached 3.3 billion barrels annually (BP 2017). This figure is then pinned the price of Brent Crude Oil, which is largely understood as the world's benchmark for crude oil prices. At the end of 2016, Brent Crude traded at $43.74 per barrel, equating to $147 billion in world production for 2016. As for diamonds, the average price per carat is $110, while total world production of diamonds in 2017 is estimated to be 142.29 million carats, equating to $15.6 billion in revenue (Zimnisky 2017).

Growth and decline cycles in petroleum are well documented, but diamonds sales—not production—have their own cyclical patterns, mostly due to social values and norms associated between engagements and weddings. Below is an interesting graph with data from the US Census Bureau and US News and World Report denoting US jewelry store sales from 2012 to 2016.

Figure 5: US Jewelry Store Sales from 2012 to 2016 (McPhillips 2017)



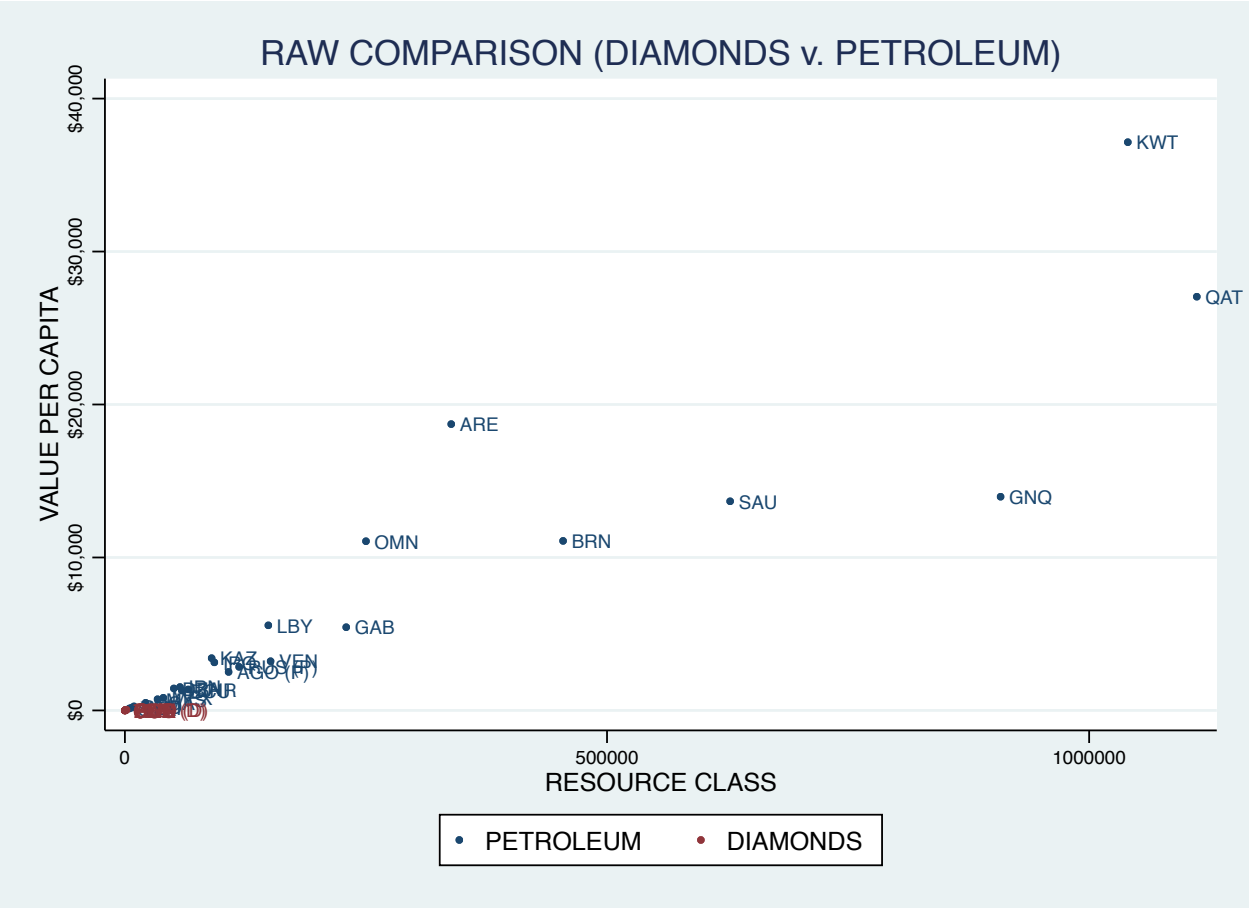
The reader will notice how the heartbeat-shaped spikes between Thanksgiving and Valentine's Day influence US consumption of diamonds. As is evident from the graph, there is a social component to these spikes incentivizing couples to get engaged

during this time period (and using diamonds as symbols of their love). However, while diamond consumption may be irregular and highly social, diamond production is more stable. Diamond companies, additionally, are incentivized to release diamonds into the market during the troughs throughout the summer and fall to keep prices high from the period from Christmas to Valentine's Day. Below are the results and analysis of testing *Hypothesis 2*.

Analysis

Once each state's statistics are put through the above equation denoting the strength of the resource class, the results are quite striking. First, as illustrated below, every single petroleum state has a stronger resource class than every diamond state. Additionally, Cameroon, Cote d'Ivoire, Ghana, and the Republic of the Congo do not have enough diamonds to reach the threshold denoted by RCA_{cp} above, therefore their score is zero, indicating that no matter how strong their resource class is, it would not make a statistically significant difference in their country. Interestingly enough, while the current work initially believed that the value of the resource would be the greatest indicator of a resource class, in reality the per capita value of the resource points the strongest finger toward the resource class. *Figure 6* depicts the correlation between the per capita value of the resource and the resource class in 2014, the last year that this dissertation has complete data for both diamonds and petroleum. As a result, the scatterplots below are static snapshots of the strength of resource classes in diamond- and petroleum-rich resource curse states. Below are the results measuring the resource class RC_c score against the value per capita of the resource:

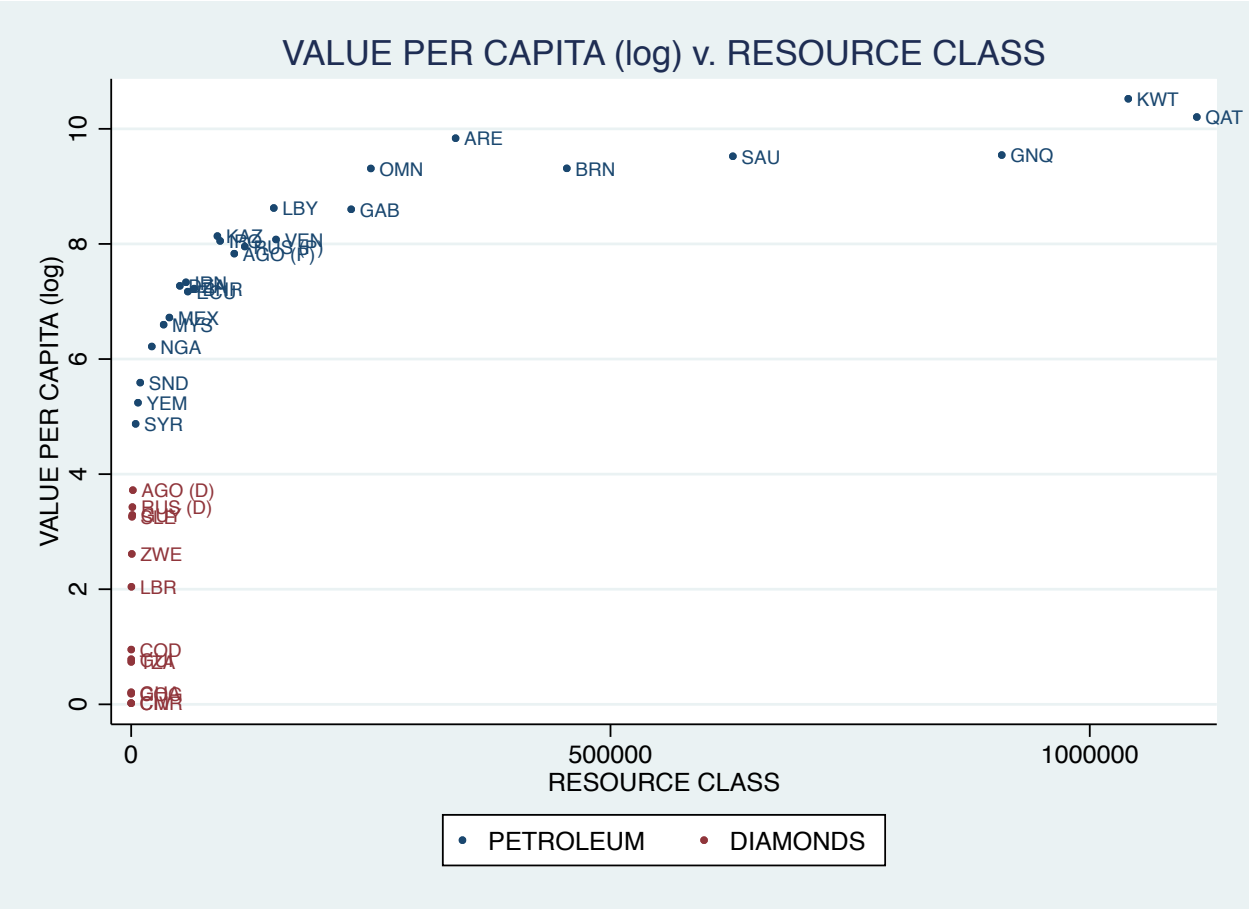
Figure 6: Resource Class by State – Raw Comparison



Analyzing the raw data shows the sheer disparity between diamond- and petroleum-rich resource curse states. As seen from the figure above, petroleum-rich states are spread out over the entire scatterplot while diamond states are huddled in the bottom corner. In order to guard against major outliers among petroleum states in this analysis, this work will now take the log of value per capita to better display the more subtle differences in resource class among diamond- and petroleum-rich states. The scatterplot

below accounts for this logging along the *y*-axis[36] while maintaining the resource class variable on the *x*-axis stable.

Figure 7: Value Per Capita (log) and Resource Class



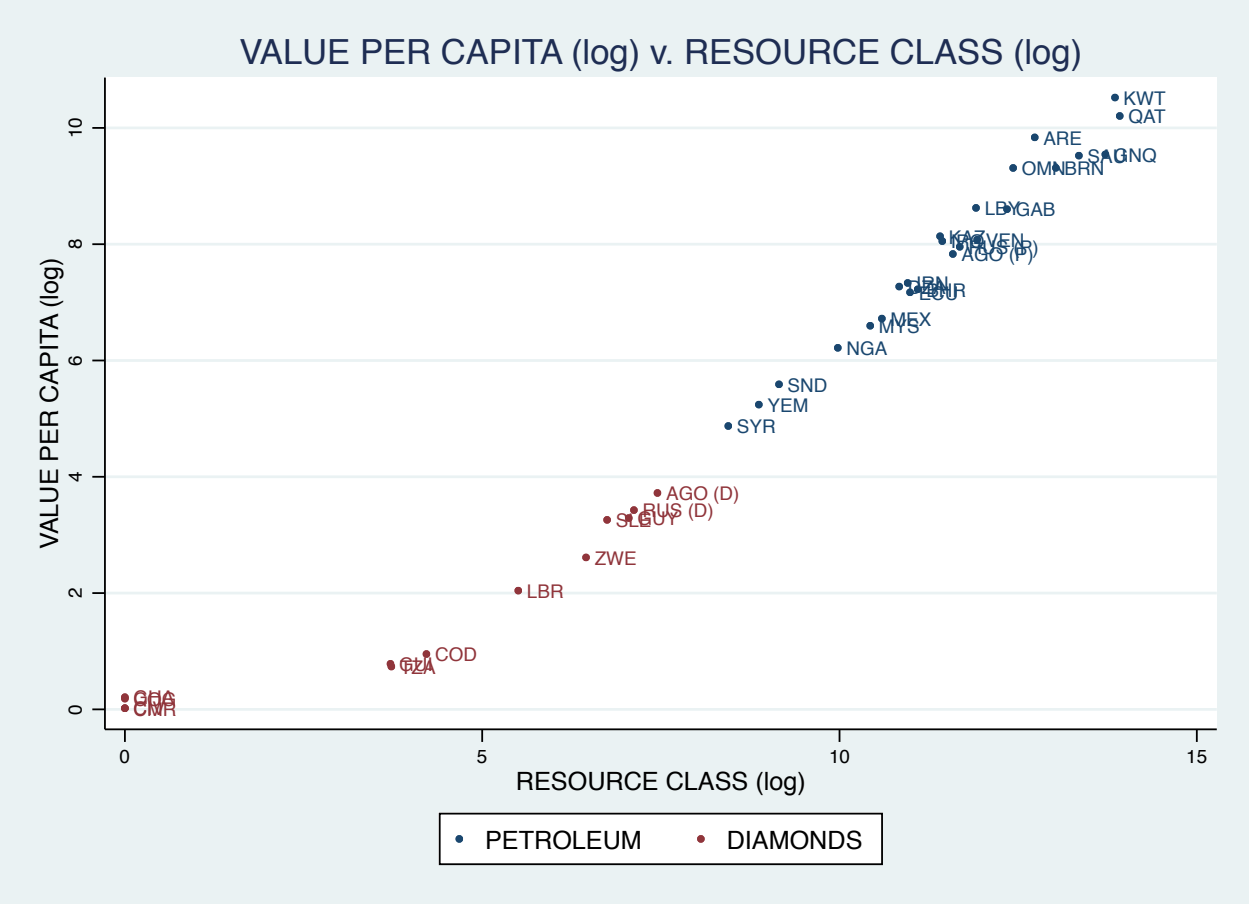
By logging the value per capita, the analyst can now discern the exponential growth of the resource class contingent upon the value per capita of the resource. As can be observed from the scatterplot above, while diamond states may experience an increase in the value per capita of their resource, there is no shift to a stronger resource class. Among petroleum states, however, the scatterplot illustrates an exponential growth in resource class as the logged value per capita increases. In the logged value per capita

[36] The log of value per capita was generated as log (valuepercapita+1) to guard against any possible negative numbers resulting from the per capita values of the resources not reaching one dollar (USD).

scores ranging from zero to four, where all of the diamond states are located, there is no increase in resource class. Yet, from four to six, there is a slight increase, with states between the eight to ten range experiencing the largest differences in resource class change.

Another observation is in order: as seen from the scatterplot above, there are few differences among the resource class in diamond states. Thus, to determine how values per capita influence the resource class, this dissertation will also take the log of the resource class variable expecting to observe a clear delineation between diamond- and petroleum-producing resource curse states. Below is the scatterplot with both the *x* and *y* variables logged.

Figure 8: Value Per Capita (log) and Resource Class (log)



With both the values per capita and resource classes logged, this scatterplot again illustrates the disparity between diamond- and petroleum-producing states. Notice how states that did not meet the RCA_{cp} threshold remained at a score of zero along the *x*-axis. Again, petroleum states, largely due to the value per capita of their resource, are more likely to experience stronger resource classes than diamond states. Of particular note, there seems to be a gap in the middle of the scatterplot above between Angola (D) and Syria, separating diamond and petroleum states' resource classes.

As previously mentioned, this is a static assessment of the strength of resource classes in 2014. Next, this dissertation will analyze correlations between diamond- and petroleum-rich states over time. The number of observations in the static dataset is insufficient to illustrate statistically significant correlations between diamond- and petroleum-rich states, and their respective resource classes. Therefore, to add variation to variables of interest, this work will account for changes from 1980 to 2016, the last year for which there was data on diamonds. Below is the multivariate regression analysis for the resource class, separated into petroleum states, diamond states, and both petroleum and diamond resource curse states.

Table 2: Cross Section Analysis - Resource Class in Petroleum and Diamond States

	(1) PETROLEUM	(2) DIAMONDS	(3) ALL STATES
Resource Value	6.88e-08	-6.86e-10	8.25e-08**
	(4.23e-08)	(2.08e-08)	(3.57e-08)
Value per Capita	7.979***	43.06***	7.263***
	(1.125)	(0.586)	(1.041)
Gini Coefficient	3,331***	8.636***	3,074***
	(229.6)	(0.894)	(207.1)
Share of Production	25,701	-8,323***	67,541***
	(16,917)	(1,944)	(11,622)
GDP per Capita	3.439***	0.0178**	3.696***
	(0.338)	(0.00756)	(0.307)
GDP (log)	1,530	-78.47***	-2,078
	(3,210)	(13.24)	(2,317)
Population (log)	-4,283	71.40***	-2,093
	(2,910)	(14.75)	(2,343)
RCA	1,403***	0.333	45.02
	(332.6)	(0.345)	(41.95)
Sum	0.924***	4.310***	0.933***
	(0.0377)	(0.530)	(0.0346)
Constant	-115,235**	288.7***	-50,520
	(50,863)	(100.7)	(34,629)
Observations	765	145	910
R-squared	0.957	0.997	0.958

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The multivariate regression analysis above depicts the strength of the resource class in petroleum and diamond states, illustrating a statistically significant correlation between the strength of the resource class and multiple variables. Naturally, the *r*-squared is high because most of these variables are part of the final equation denoting the resource class. Population and GDP variables are logged to more accurately account for disparities among the states in this analysis. As can be determined from the table above, the value per capita of the resource and the Gini coefficients are the most significant indicators of a resource class, at $p < 0.01$, between both diamond- and petroleum-rich states. GDP per capita was also statistically significant at $p < 0.01$ for petroleum states, but significant at $p < 0.05$ for diamond states, indicating that there is a more reliable

positive correlation between GDP per capita and resource classes among petroleum states than among diamond states.[37]

Furthermore, there is a negative correlation among the share of production and log of GDP against resource class in diamond states, significant at $p < 0.01$ levels. This may indicate that the poorer the diamond state is, the smaller the share of resource production, and the comparably stronger its resource class becomes. This change in both direction and magnitude illustrates a key difference among diamond- and petroleum-rich resource curse states, as there is a positive, though not statistically significant, relationship between petroleum-rich state resource classes against their log of GDP and share of production.

As the table illustrates, the two most highly significant correlations with a resource class were the value per capita of the resource, along with the Gini coefficient. However, this dissertation is also seeking to determine which of these variables accounts for most of the variance among diamond- and petroleum-rich states. Below is the regression analysis accounting for only the correlation between per capita values of the resource in determining the strength of the resource class.

[37] There is additionally a strong correlation between 'sum' and the strength of the resource class because this 'sum' accounts for all of the variables in the equation for *Hypothesis 2* without including the binomial operator, $\sum_c S_{GDP_{cp}}$, which is a synthetic control method outside of the summation.

Table 3: Bivariate Regressions (Resource Class and Value Per Capita/Gini Coefficient)

	RESOURCE CLASS			
	Diamonds	Petroleum	Diamonds	Petroleum
Value Per Capita	43.33***	30.88***		
	(0.390)	(0.483)		
Gini Coefficient			22.53*	8.189
			(11.54)	(841.2)
Constant	-18.48**	16,162***	-380.8	147,851***
	(8.161)	(3,805)	(481.2)	(33,460)
Observations	145	765	145	765
R-squared	0.989	0.843	0.026	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The left hand of the regression analysis above indicates a statistically significant correlation between per capita values and resource classes at $p < 0.01$ levels for both diamond- and petroleum-rich states. Interestingly enough, in terms of value per capita, diamond states' *r*-squared values are higher than their petroleum counterparts. While the per capita value accounts for 84% of the variance in resource classes among petroleum states, it accounts for 99% of variance among diamond states. This is likely due to the fact that petroleum states have a much stronger resource class than diamond states, and thus their scores vary more in strength, as observed from the scatterplots above. Next, this work will conduct the same bivariate regression analyzing only the resource class and Gini coefficients.

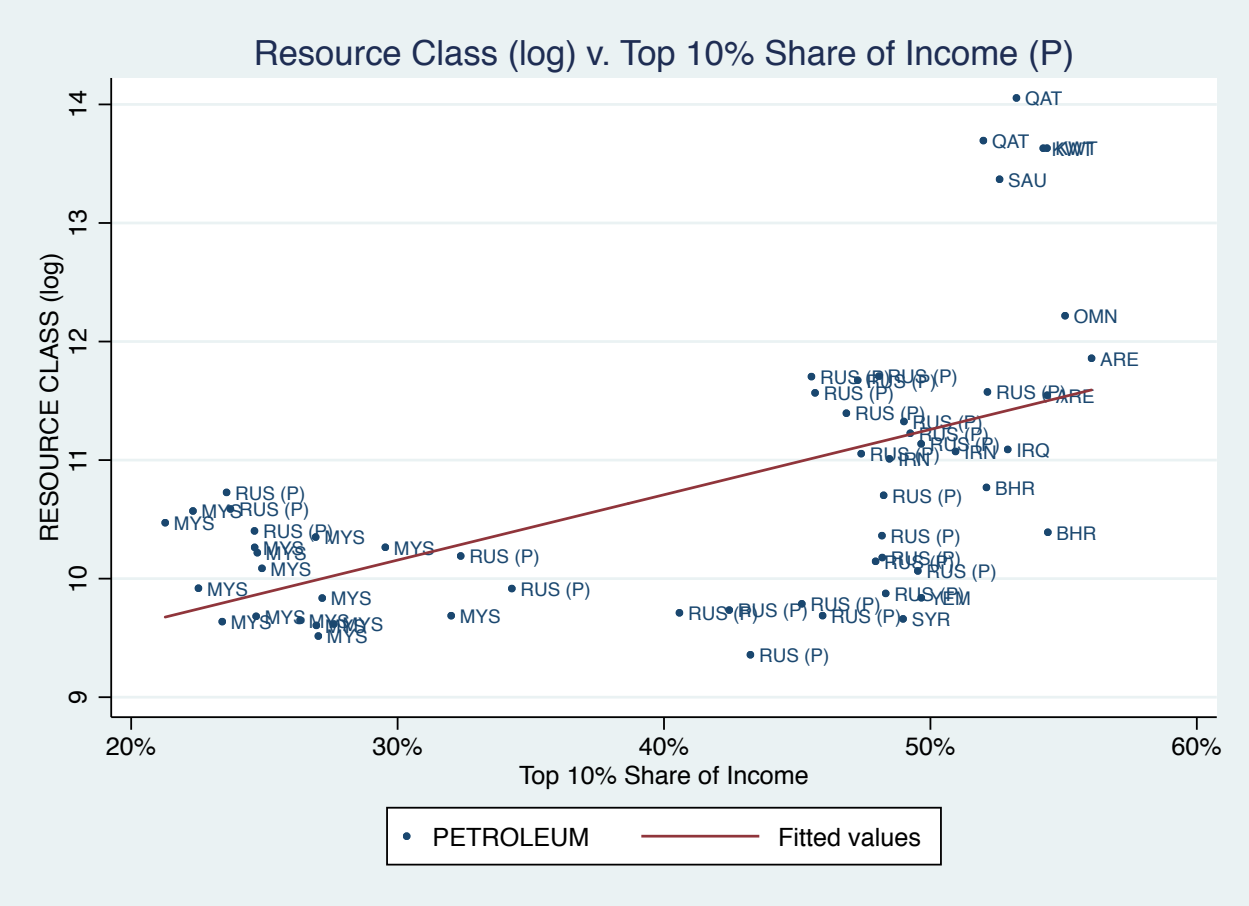
The right hand of the table above shows the relationship between the resource class and the Gini coefficient. When conducting a bivariate analysis looking only at these two variables, the reader observes a very different pattern. Not only are these two variables not correlated at $p < 0.05$ levels, the *r*-squared values for both regressions are negligible. Yet, there may be another reason why these two variables are not correlated. This dissertation is interested in the resource class that diamond- and petroleum-rich

states produce, but perhaps Gini coefficients are vestiges of a bygone era in measuring global inequality.

Critics may rightly argue that Gini coefficients are outdated methods for measuring income inequality, and using them in such a systematic fashion for *Hypothesis 2* potentially misrepresents true inequality in a state. As a result, this dissertation is also incorporating Piketty et al's World Wealth Indicators (2015) from the *World Inequality Database* as intervening variables in measuring the strength of the resource class. While not as complete as the Gini Index, this database measures the income of the top 10% of earners in a state, rather than the Gini coefficient's ratio. It also measures changes in the top 1% of earners and the total wealth, as opposed to income, of the top 10% and 1% of the population. These indicators, though neither as complete as Gini coefficients nor compiled annually, may lend a breadth of support to the findings in *Hypothesis 2*. The two states with the most data in Piketty et al's (2015) dataset are Malaysia (14 years) and Russia (26 years). Most other states have only one or two datapoints, and are mostly located in the Gulf, indicating that Piketty et al's (2015) data heavily samples some states over others. Furthermore, large-scale petroleum producers, such as Algeria and Angola do not have data. There is also no available data on any diamond state except for Ivory Coast and Russia. Due to the lack of data, time series regression analyses cannot be conducted. Finally, while Piketty et al's (2015) database possesses fountains of data regarding the top 10% and top 1% of wealth in a state, this information is mostly limited to OECD-member states, which naturally are not reflected in this work, as they are not resource curse states.

Despite these setbacks, the present work will measure the relationship between the resource class, as defined above, and differences in inequality, as tabulated by the World Wealth Indicators database. To account for the drastic differences between diamond and petroleum states in terms of their resource class, this dissertation again took the log of the resource class and pinned it against Piketty et al's (2015) indicator of the top 10% share of income. The results are below.

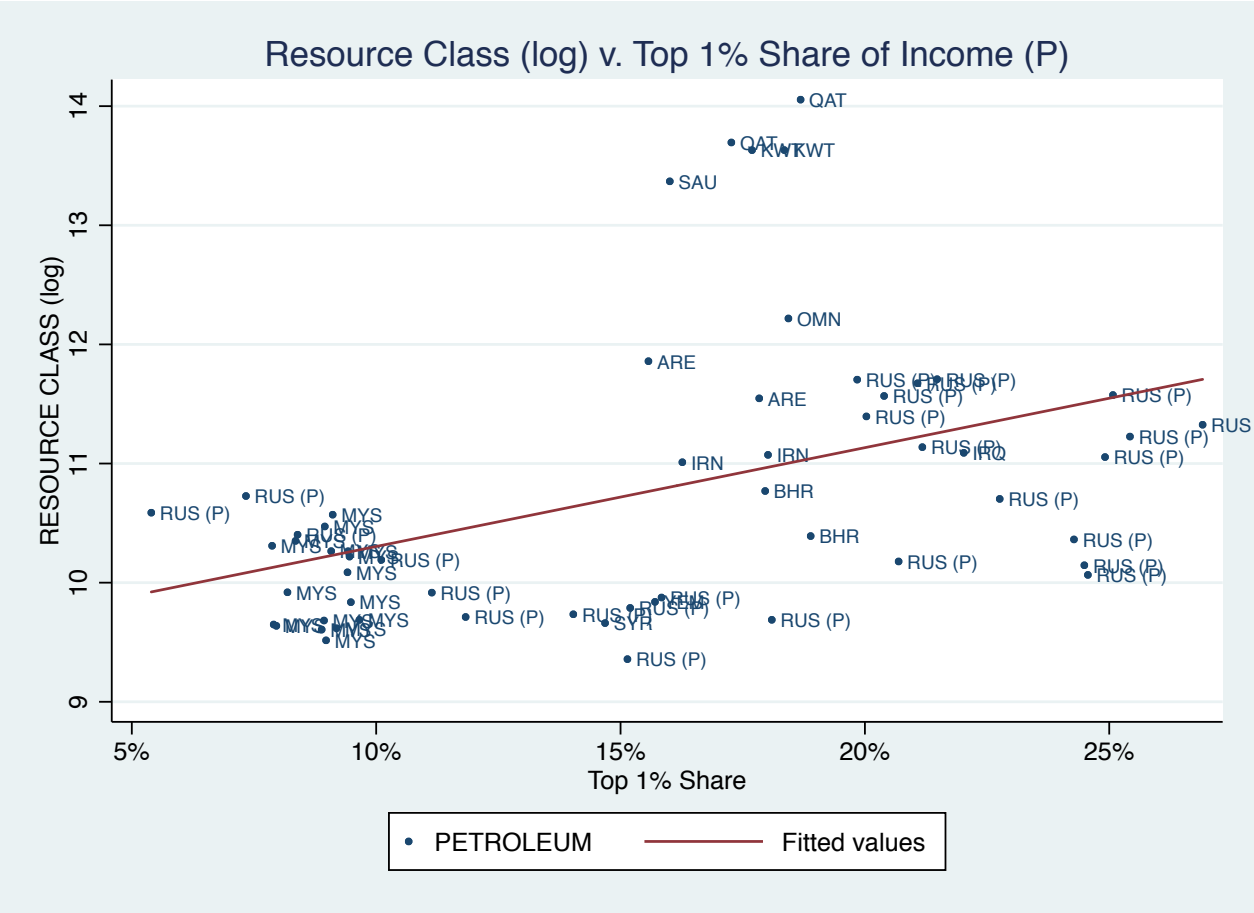
Figure 9: Scatterplot of Resource Class (log) v. Top 10% Share of Income (Petroleum States)



The scatterplot indicates a positive relationship between the resource class, as defined by the formula above, and the top 10% share of income. For the purposes of this work, the main takeaway from this scatterplot is not only that petroleum may contribute

to inequality, but that it may also contribute to changes in inequality (at least) among the top 10% of the population. In order to visualize if this inequality extends to the top 1% of income holders, the *x*-axis will denote this percentage in the scatterplot below.

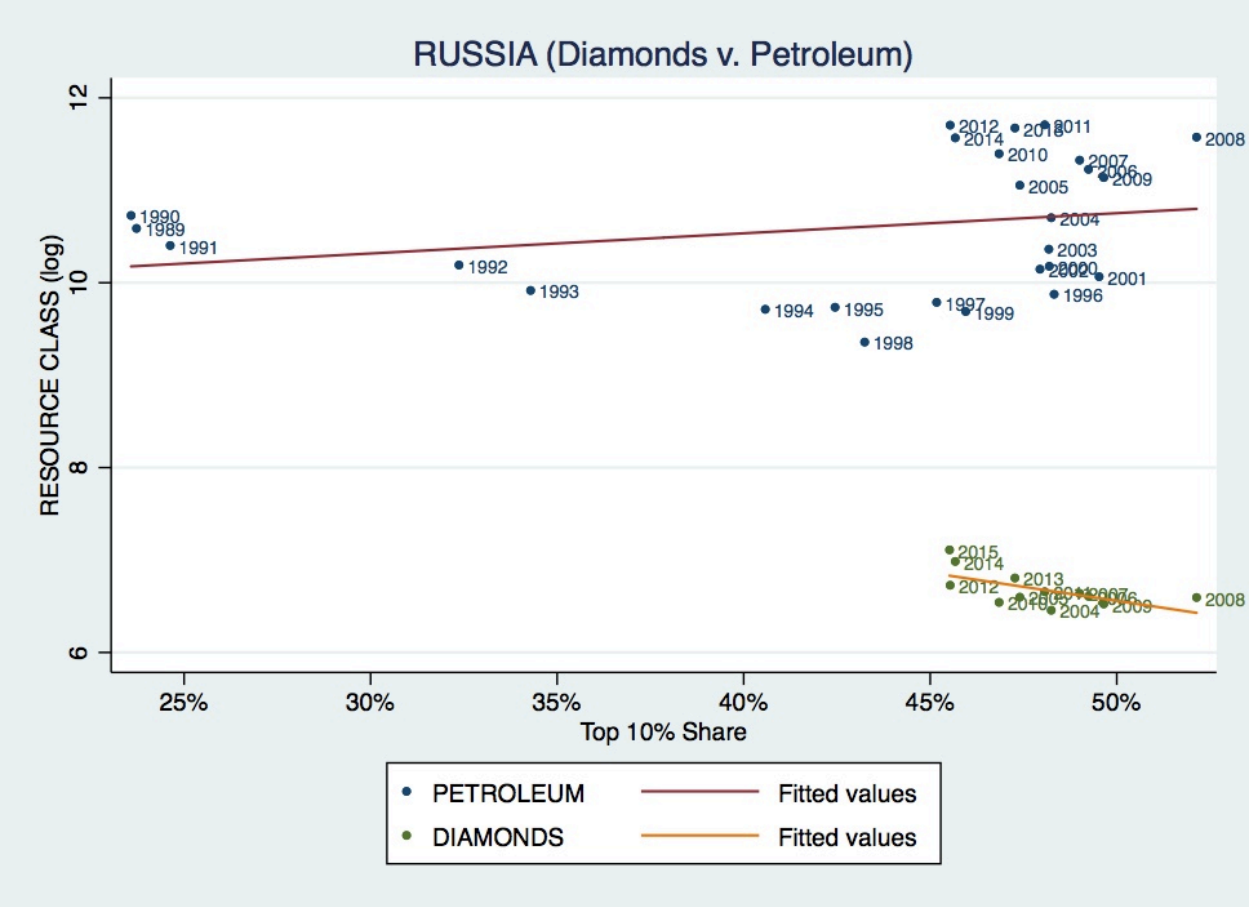
Figure 10: Scatterplot of Resource Class (log) v. Top 1% Share of Income (Petroleum States)



When looking only at petroleum states, we observe a similar pattern with the regression line following a similar slope—the stronger the resource class (which accounts for the Gini coefficient), the stronger the top 1% share of income, signifying that the inequality levels associated with petroleum benefit the top 10% and top 1% incomes of the population.

If *Hypothesis 2* holds true, then we should be observing a negative correlation in diamond states between the resource class and top 10% and 1% shares of income. As previously mentioned, there is only data on one diamond state, Russia, and considering this, the present work is comfortable placing both diamonds and petroleum in one scatterplot for Russia. The results are below.

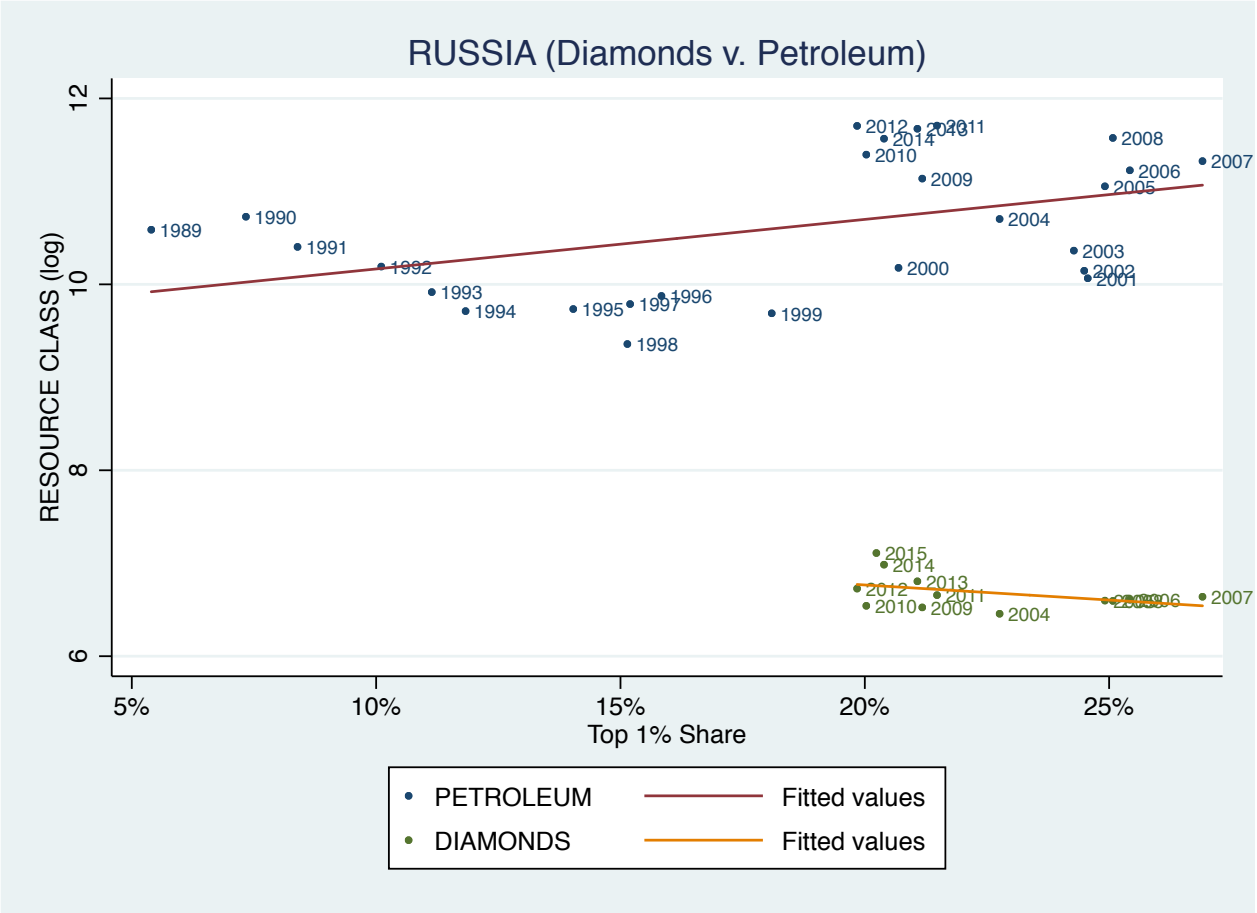
Figure 11: Russia (Diamonds v. Petroleum) Top 10% Share



These results are quite suggestive, though they may not be visually appealing. First, there is obviously more data regarding petroleum than diamonds, with petro-data dating back to the time of the Soviet Union. That said, given the available data, we can observe a positive relationship between the Russian petroleum resource class (log) and the top 10% share of income, while also noticing a negative relationship, as depicted by

the downward sloped regression line, between these same variables regarding diamonds. These results also indicate that, at least in the case of Russia, diamonds lead to a less powerful (read: less wealthy) resource class than petroleum. This dissertation will now measure the results for the top 1% of Russian income holders.

Figure 12: Russia (Diamonds v. Petroleum) Top 1% Share



There are multiple similarities between this scatterplot and the previous one, both supporting the same results—petroleum produces a more unequal resource class than diamonds. However, there is a pointed, yet subtle, difference between both scatterplots: the downward slope for the regression line in Russia's diamond resource class is not as sharp for the top 1% of income as it is for the top 10% of income. The exact opposite is true for the regression line for petroleum: it is steeper for the top 1% than the top 10% of

income. Both of these regression lines further indicate the disparity in resource classes among diamond and petroleum states, even though this dissertation is employing the same variables for the same state. These findings also indicate that the diamond resource class in Russia is not as powerful as the petroleum resource class, as the top 1% of the Russian petro-class has a steeper slope than its 10% counterpart while the top 1% downward slope for diamonds is *not* as steep as its 10% counterpart. Though subtle, these results show that the top 1% of the Russian petroleum class is comparably more powerful than the top 10% of the petro-class. On the other hand, while the top 1% of the Russian diamond class is more powerful than the top 10%, it is not as strongly correlated, as the slope on the regression line is gentler.

The data taken from Piketty et al's (2015) World Wealth Indicators database allowed for another degree of testing, and the results support *Hypothesis 2* on a more nuanced level, at least in Russia. Instead of taking the Gini coefficient and using that as a proxy for inequality, Piketty et al's (2015) data segregates inequality into the top 10% and top 1% of income. This not only lends another dimension to these results, it also allows this work to compare differences among inequalities within one state, as was the case with Russia. All of these regressions and scatterplots combined indicate a positive relationship between petroleum and a stronger resource class, and diamonds with a weaker resource class. There is, however, one weakness in testing Piketty et al's (2015) data against the results from the resource class in Russia. When analyzing only the years in which there is data on diamonds and petroleum (2004-2014), the regression lines go in the same direction for the share of wealth for Russia's top 10% and top 1%, casting doubt on the difference between diamonds and petroleum in Russian inequality and suggesting

that changes in the resource class are exogenous to the diamond and petroleum industries. Importantly, this is only the case when analyzing the logged value of the resource class and not the resource class per se. Additionally, though the slopes are similar in the scatterplots, the fact remains that the petroleum resource class is consistently found to be stronger and wealthier than the diamond resource class. The regression lines simply indicate that an increase in diamonds and petroleum production correlates with an increase in the strength of the resource class. The scatterplots illustrating this similarity are depicted in *Figures 2* and *3* of *Appendix 1*.

Despite the slight anomaly in Russia from 2004 to 2014, there is considerable evidence suggesting that diamonds and petroleum foment different strengths among elites in their respective resource classes. This evidence supports *Hypothesis 2* along various nuanced levels.

Chapter Conclusions

When analyzing the results from the political resource curse, we note sharp differences between diamond and petroleum states. *Hypothesis 1* measured government-MNC strife along eight different tracks, finding that, at least in the case of Venezuela, strife was consistent, internationalized, and contingent upon oil prices. However, when analyzing Tanzania, the opposite seemed to be true. Tanzania's strife with Petra Diamonds was erratic and spontaneous, with the government seizing Petra's rough diamonds bound for Antwerp. Additionally, strife was limited to only the extraction industry and did not permeate into other industries or become internationalized. Strife was also not dependent upon the world-trading price of diamonds, but rather on a dispute

on what the diamonds were worth. These results suggest that diamond and petroleum states suffer from government-MNC strife in different ways.

Hypothesis 2 seeks to uncover differences in inequality among diamond- and petroleum-rich resource curse states, finding that diamonds generate a less powerful resource class than petroleum. Every petroleum state in this analysis enjoyed a wealthier resource class than their diamond counterparts. Furthermore, in the case of Russia, we noticed how petroleum led to a stronger resource class while diamonds led to a weaker resource class, at least among the top 1% and 10% share of wealth given available data. When incorporating Piketty et al's (2015) dataset against this analysis, we also found a correlation between the strength of the resource class and the percent of wealth the upper echelons of society held. The disparities among diamond and petroleum states support *Hypothesis 2* and lend credence to how states may experience a political resource curse in different ways.

The next chapter continues the analysis of the political resource curse, examining differences among diamond- and petroleum-rich states along the lines of the strength of the nationalized industry and property rights enforcement.

Chapter 5

THE POLITICAL RESOURCE CURSE (PART 2)

Testing Hypothesis 3

Petroleum-rich states are more likely to have stronger nationalized industries than diamond-rich states.

This hypothesis is aimed at highlighting the differences between diamond and oil resource curse states at the institutional level. As emphasized by the scholarship of Menaldo (2016), the resource curse is greatly influenced by the capabilities of state institutions. For Menaldo and others (e.g., Collier 2010a; Karl 1997; van der Ploeg & Poelhekke 2010) institutions are the sole determining factor in whether a state suffers from a resource curse. For the *theory of resource curses*, while institutions are important factors, the resources themselves underpin institutional capacity. In this spirit, *Hypothesis 3* seeks to tease out differences between diamond- and petroleum-rich states, specifically in how they develop institutions around their resources. If their resources are different, then it follows that they may influence institutions and institutional capacity in different ways. Since resources, especially petroleum, are paramount for the state economies, it behooves the analyst to assess how nationalized industries differ in diamond- and petroleum-rich resource curse states. *Hypothesis 3* expects petroleum-rich states to not only be more likely to nationalize their industries than diamond-rich states, but also possess stronger nationalized industries than their diamond state counterparts in terms of total values, as percentages of GDP, and GDP per capita.

As mentioned time and again in this dissertation, the revenues generated from petroleum far outstrip those of diamonds. This hypothesis predicts that petroleum-rich states are more likely to nationalize and possess stronger resource industries than diamond states. *Hypothesis 3* is largely predicated on the significant revenue stream generated from petroleum rents. Conversely, diamonds, because of the comparably little value in terms of rents, are less tempting for state nationalization efforts. While this may be the case, *Hypothesis 3* still predicts some nationalized diamond industries to be powerful in diamond states (e.g., Endiama in Angola). Nevertheless, *Hypothesis 3* expects nationalized oil companies (NOC) in petroleum-rich states to be more powerful than their diamond counterparts (e.g., Saudi ARAMCO, Sonangol, PDVSA, etc.).

To be clear, simply because an industry is nationalized does not imply governmental corruption or that the nationalized industry acts as a sinister arm of the incumbent. Many analysts would remind us that some nationalized industries, such as British Petroleum[38] in the 1970s and state-owned Equinor in Norway, may provide an economic benefit to the state. Equinor, specifically, (re)invests petroleum profits into the national *Oljefondet*, which acts as a sovereign wealth fund for Norwegian state. Among resource curse states, other nationalized industries, such as Kuwait Petroleum Corporation and Qatar Petroleum, seem to manage their wealth prudently, albeit at the expense of keeping the existing monarchies in power and delaying advances to democracy. Other nationalized industries fund educational opportunities in their host states, such as Petronas in Malaysia and OOC in Oman. Still others, such as KazMunayGas, Petroecuador, and Pemex, operate in a relatively neutral light, despite

[38] The British government sold over 400 million shares of BP from 1979 to 1987, as part of Thatcher's privatization doctrine (Reuters 1987).

sporadic accusations of corruption and controversies (Weissenstein & Rodriguez 2013; Alexander 2010; Goodley 2010). Once again, possessing a nationalized resource industry does not spell out a resource curse. Incumbents may use their nationalized industries for the benefit of the governed, for their personal gain, or a combination of the two. For example, PDVSA funded social welfare programs in Venezuela (Monaldi 2018), and Ecuador's Rafael Correa bought over 16,000 public vehicles for Petroecuador rather than for trash collection or policing (Montenegro 2018). Rather, this hypothesis suggests that possessing a nationalized industry lends incumbents the opportunity to use the industry for the benefit of their people, their own gains, or a combination of the two. If this work can track pathways and incentives for the potential of a resource curse, then scholars would be better positioned to triangulate differences among resource curse states contingent upon their resources. If *Hypothesis 3* holds true, and petroleum states possess stronger nationalized industries than their diamond counterparts, then this is a pathway petro-states may take to or out of the resource curse at their discretion; diamond states have no such luxury.

As hinted in the literature review, this hypothesis is put forward as part of the *theory of resource curses* to determine how the government could use a nationalized industry, whether oil or diamonds, to further its oftentimes-shortsighted goals. There is a long string of resource curse research indicating that resources aid incumbents to remain in power for longer periods of time. For example, during the Arab Spring, Saudi Arabia learned from Egyptian and Tunisian mistakes and deployed loyal security forces and mobilized the clergy to quell rebellious behavior in the Kingdom (Gause 2011:6-8). At the macro level, Cuaresma et al (2010) discovered that petroleum allows authoritarian

regimes to remain in power for longer periods of time than non-authoritarian regimes. Andersen and Aslaksen (2013) find similar results. Omgba (2009) realized that oil, but not diamonds or any other natural resource, helped incumbents remain in office in African states. According to Smith (2004), petroleum may allow for authoritarian regimes to persist, but they also legitimize democracies. *Hypothesis 3* anticipates authoritarian regimes, monarchies, weak democracies, and other resource curse governments will chose to nationalize oil industries rather than tempt private companies to practice 'extract and exit' policies. Nationalized oil companies (NOC) also allow governments to form blocs, such as OPEC, and act in unison by collectively embargoing Western states, as Arab members[39] of OPEC did in 1973 and 1979. Executing such wide-scale embargoes would be impossible if states had multiple private companies extracting petroleum and hoping to keep a solid revenue stream. Precisely because diamonds are not the lifeblood of the world economy, such a devastating embargo would not be possible with this resource, even if states would nationalize their diamond industries.

Testing *Hypothesis 3* offers many challenges and is often messy. The main challenge is collecting production data from so many NOCs, as there is likely no such uniform dataset. As the reader will notice, sometimes data is collected from news sources informing the public about crude oil production, as the NOCs themselves do not supply much data. Sometimes data may come in barrels per day or per year, while other times, the data may be presented in dollars or in local currencies, meaning that all of this information must be synthesized in a useful fashion before analyzing it. Additionally,

[39] Technically, the oil embargo of 1973 was orchestrated by OAPEC, the Organization of Arab Petroleum Exporting Countries, which includes most Arab members of OPEC, but also includes less petroleum-rich states, such as Egypt.

states may not nationalize the entire oil industry. Even Saudi Arabia, with its ARAMCO behemoth, shares some work with other MNCs. Further complicating matters is that oil companies are often built and designed laterally and not vertically. For example, many oil companies focus only on upstream (discovery and extraction), midstream (refining and processing), or downstream (transportation and pipelines) processes of the oil market. So how should analysts quantify this information? Three or more companies may be involved in discovering, extracting, refining, and transporting the same barrels of petroleum, so aggregating results would end with inaccurate information. Luckily, many NOCs are conglomerates, meaning that they engage in 'vertically' upstream, midstream, and downstream endeavors. However, if there were any exceptions, they would be pointed out separately. Another variable is the change in oil production throughout the year and the constant fluctuation in price of petroleum. Sometimes even the publicly accepted value of production of an NOC outstrips the production of the state itself, though oil prices remain constant.[40] The media sometimes comments on these discrepancies, but it should be noted that for microstates, such as Brunei and Bahrain, their data reflects partnerships with larger companies (e.g., Shell in the case of Brunei) or the NOCs are more interested in refining petroleum rather than producing it (Bahrain's BAPCO). NOCs may also extract petroleum outside of a state's borders, such as Rosneft's activities in Canada, Brazil, and the United States. Finally, petro-states may be collecting revenues from non-nationalized industries, or may work in conjunction with MNCs to collect rents, meaning that the nationalized industry is not their only way to penetrate the resource industry.

[40] A common example is Venezuela's PDVSA's public production of petroleum outstripping Venezuela's total oil production (e.g., Parraga & El Gamal 2017).

Diamond-mining companies do not have the same challenges NOCs face. Discovery and extraction often go hand-in-hand, while polishing and setting is mostly outsourced to Hong Kong, India, and Singapore. Diamond companies analyzed in this hypothesis are designed laterally rather than vertically, as in petro-states. Rough diamonds are often extracted from the states mentioned in this analysis and then polished in another country. Conversely, because petroleum extraction lifts a lot of water from the ground and because it is oftentimes cheaper to partially refine petroleum on-site, rather than transport crude petroleum along with its residue, NOCs seem to be designed more vertically. Nevertheless, unlike NOCs, access to reliable diamond production information is less common among diamond-rich resource curse states. Additionally, nationalized diamond companies are often not completely owned by the government, indicating that some of the revenues may be siphoned off to offshore players (e.g., Anhui in the Democratic Republic of the Congo).

With this in mind, this work will create a nationalization coefficient, measuring the degree of nationalization of an industry per diamond- and petroleum-rich state, and discern how fiscally powerful it is in relation to the state's GDP. The prediction is that oil states would have a coefficient greater than 1, whereas diamond states would have coefficients less than 1. While perfect correlation is not expected, this hypothesis predicts diamond states to possess comparably weaker nationalized industries than their petroleum counterparts.

Formally, this hypothesis would define a resource curse state's degree of nationalization (NAT_c) as the following:

$$5.1) \qquad NAT_c = \frac{V_N}{V_P} + \frac{V_P}{GDP_C}$$

where V_N is the nationalized value of the production of either petroleum or diamonds in a specific state. This number will be divided by the value of the total production V_P of a state's resource, (V_N / V_P), forming a simple ratio determining the comparative strength of the nationalized industry within the state's total oil or diamond output. This ratio will be added to another ratio, which determines the strength of the resource industry within the state economy (V_P / GDP_C).[41] If the value of these two ratios were greater than or equal to 1, this hypothesis will consider this nationalized coefficient of a state NC_C to be strong, whereas a value of less than 1 would indicate a weaker nationalized industry. Formally, it would be written as such:

$$5.2) \qquad NC_C = \begin{cases} strong & NAT_C \geq 1 \\ weak & otherwise \end{cases}$$

Before delving into the results, a note on the process of data collection of each state's nationalized diamond and oil industries is in order. Every petroleum state enjoys a national oil company, while six out of the eleven diamond states have a nationalized diamond company. Due to fuzzy data, a few states must be eliminated from the equation. First, there is no current data on the Yemeni NOC; Bahrain is more focused on refining petroleum than producing it, and Brunei's NOC far outstrips its host state's production by a factor of ten. Second, while some diamond states may possess nationalized diamond companies, there is little production data on them. This was the case for Tanzania's STAMICO, which mines not only diamonds but also gold and coal, and Sierra Leone's Diminco. The full details on data collection for the nationalized industries of petroleum-

[41] Again, this work is cognizant that accounting for a state's GDP also counts for total petroleum revenue. However, as this work is interested in creating a ratio to determine the strength of the resource industry and not seeking to understand what a state would look like without the resource industry, the above formula will be used to triangulate the strength of the nationalized industry in a state.

rich resource curse states can be found in *Appendix 2*. The petroleum states to be analyzed in *Hypothesis 3* are the following: Algeria, Angola, Ecuador, Equatorial Guinea, Gabon, Iran, Iraq, Kazakhstan, Kuwait, Libya, Malaysia, Mexico, Nigeria, Oman, Qatar, Russia, Saudi Arabia, Sudan, Syria, United Arab Emirates, and Venezuela.

While every single petroleum state has a nationalized oil industry, diamond states offer a very different story. Diamond production will be measured in carats and the dollar value for those carats. Unlike crude oil, whose value can be measured by the benchmarks—Brent Crude, West Texas Intermediate, Bonny Light, Dubai, and so on—each diamond must be measured individually, with some states producing higher quality diamonds than others. Also unlike petroleum, diamonds cannot be mixed or blended with other diamonds to form a predictable product. Perhaps because of this, there are very few nationalized diamond industries in resource curse states. Interestingly enough, it is not until recent years that diamond states have begun to threaten nationalizing their mines and creating extraction companies. Tactics for nationalizing diamond industries seem sloppier than petroleum industries. Instead of creating a national diamond company, many states have resorted to nationalizing the mines themselves, though they are often shared with local and foreign-owned diamond companies. Additionally, crude tactics, such as expropriating extracted diamonds from private companies as analyzed in *Hypothesis 1*, seems to be quite common in resource curse diamond states (e.g., Tanzania). Perhaps predictably, diamond states are home to artisanal diamond mining. While artisanal mining may be an important socio-economic component of resource curse states, sometimes it lends itself to exploitation. While individuals engaging in artisanal mining often band together, their efforts hardly count as a bona fide for-profit

company. Additionally, unlike professional mining companies, these individuals often use hand-made tools for panning and not large-scale and specialized machinery associated with diamond companies. As a result, very few diamond states possess powerful nationalized governmental arms. Details on data collection for diamond states can be found in *Appendix 2*.

Out of the thirteen diamond-producing states in this analysis, six have nationalized industries—Angola, the Democratic Republic of the Congo, Russia, Sierra Leone, Tanzania, and Zimbabwe. However, Sierra Leone's nationalized industry became defunct in 1993 (Martinez 2001), neither the DRC nor Russia own 100% of the shares of their companies, and there is no reliable production data on STAMICO in Tanzania outside of its share in the Williamson Diamond Mine. Only Angola published the average carat value of its diamonds mined through Endiama, so this dissertation is adopting the Kimberley Process data to estimate the average value of diamonds in the remaining states. The average dollar value per carat in the Democratic Republic of the Congo is $10.63, in Russia $88.75, and in Zimbabwe $50.00. Due to lack of production data, only four diamond states will be analyzed in *Hypothesis 3*: Angola, Democratic Republic of the Congo, Russia, and Zimbabwe.

Results

The documented evidence largely supports *Hypothesis 3*. Every petroleum resource curse state owns and operates a nationalized oil company while only six of the thirteen diamond states possess a national diamond company. Generally, it will be understood that the more powerful nationalized companies are those with larger earnings

from their oil or diamond production. Below is a chart measuring the nationalization coefficient NC_C of each state along with the comparative strength of the nationalized industry in relation to total resource production (V_N / V_P). As previously mentioned, a value of 1 or higher indicates a very strong nationalized industry, while scores less than 1 indicate comparably weaker nationalized industries. States without a nationalized resource industry have (V_N / V_P) ratios of zero, with NC_C values labeled as N/A.

Table 4: Nationalization Coefficient & Strength of Nationalized Industry

COUNTRY	RESOURCE	NAME OF NATIONALIZED COMPANY	NATIONALIZED VALUE	TOTAL VALUE	RATIO	NATIONALIZATION COEFFICIENT
Algeria	1	Sonatrach	$20,946,355,979	$25,208,892,900	83.09%	0.968748232
Angola (D)	0	Endiama	$956,000,000	$1,001,382,837	95.47%	0.966364224
Angola (P)	1	Sonangol	$34,404,423,675	$34,361,428,500	100.13%	1.331904224
Cameroon	0	N/A	$0	$498,871	0.00%	0
Cote d'Ivoire	0	N/A	$0	$497,540	0.00%	0
DRC	0	Anhui Foreign Economic Construction Group (China and DRC)	$32,490,000	$251,336,608	12.93%	0.137507835
Ecuador	1	Petroecuador	$5,812,652,340	$8,764,839,900	66.32%	0.765849609
Equatorial Guinea	1	GEpetrol	$8,035,976,875	$9,029,187,500	89.00%	1.445015083
Gabon	1	Gabon Oil Company	$3,512,322,000	$3,515,515,020	99.91%	1.184651385
Ghana	0	N/A	$0	$6,424,888	0.00%	0
Guinea	0	N/A	$0	$14,765,507	0.00%	0
Guyana	0	N/A	$0	$19,077,191	0.00%	0
Iran	1	National Iranian Oil Company	$119,770,636,955	$119,770,636,955	100.00%	1.269394159
Iraq	1	Iraq National Oil Company	$71,905,000,000	$122,238,500,000	58.82%	1.259314515
Kazakhstan	1	KazMunayGas	$6,931,302,840	$27,108,739,800	25.57%	0.399786395
Kuwait	1	Kuwait Petroleum Company	$137,918,900,000	$104,540,380,000	131.93%	2.085337913
Libya	1	Libya National Oil Corporation	$44,429,990,000	$64,625,440,000	68.75%	1.551783304
Malaysia	1	Petronas	$10,345,384,800	$10,696,617,000	96.72%	0.998264508
Mexico	1	Pemex	$39,068,231,250	$43,144,916,250	90.55%	0.940360838
Nigeria	1	Nigerian National Petroleum Corporation	$13,928,467,322	$53,956,125,000	25.81%	0.376177339
Oman	1	Oman Oil Company SAOC	$18,285,131,250	$18,365,066,250	99.56%	1.238794662
Qatar	1	Qatar Petroleum	$14,129,113,500	$10,401,262,650	135.84%	1.426622695
Rep. of Congo	0	N/A	$0	$1,006,269	0.00%	0
Russia (D)	0	Alrosa	$2,553,499,025	$3,578,580,163	71.36%	0.715749071
Russia (P)	1	Rosneft	$32,791,878,000	$175,296,798,000	18.71%	0.294743307
Saudi Arabia	1	Saudi ARAMCO	$167,633,550,000	$166,998,139,020	100.38%	1.245638444
Sudan	1	Sudapet	$925,298,360	$11,566,229,500	8.00%	0.30631665
Syria	1	Syrian Petroleum Company	$7,190,500,000	$12,952,750,000	55.51%	0.875705981
UAE	1	Abu Dhabi National Oil Company	$47,895,300,000	$49,305,018,330	97.14%	1.101570765
Venezuela	1	PDVSA	$49,979,358,750	$47,411,446,875	105.42%	1.181955933
Zimbabwe	0	Zimbabwe Consolidated Diamond Company	$89,500,000	$105,143,650	85.12%	0.85837979

Topping the list with the highest nationalization coefficient is the Kuwait Petroleum Corporation (KPC), which as noted in *Appendix 2*, produces more petroleum than its host state and is wealthier than its (already wealthy) host state. A nationalization coefficient of over 2.00 sounds unprecedented, but it is caused by KPC producing more petroleum than Kuwait *and* generating more income from its petro-production than the

microstate of Kuwait earns in a year.[42] This is complemented by the 131.93% ratio, suggesting that KPC wields more economic power than the combined petroleum output of Kuwait. Additionally, also as noted in *Appendix 2*, Qatar Petroleum produces more oil than its host state, likely due to foreign assets.

Eleven other states have strong nationalized industries—Libya,[43] Equatorial Guinea, Qatar, Angola (P), Iran, Iraq, Saudi Arabia, Oman, Gabon, Venezuela, and the United Arab Emirates. As *Hypothesis 3* expects, all of these are petroleum-producing states with nationalized coefficient scores over 1, while not one diamond state reaches this threshold. However, not all of the oil states in this dataset topped at over a value of 1. Malaysia's Petronas powerhouse could be due to round off error, but Algeria, Mexico, Syria, Ecuador, Kazakhstan, Nigeria, Sudan, and Russia (P) all are oil states with values less than 1. Many of these states have invited MNCs from the West and China to extract petroleum and pay rents, suggesting that while oil still plays a large role in their economies, they can only collect rents from other companies and not manipulate the resource industry as if it were an overwhelmingly powerful NOC.

The four diamond states in this dataset were below the cutoff value of 1, but in the case of Angola's Endiama, just barely. Endiama's strength as a nationalized diamond company is truly impressive, with Angola (D) possessing a nationalization coefficient of 96.6. Zimbabwe, Russia (D), and the Democratic Republic of the Congo had lower

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[42] If Kuwait, Qatar, or other states have a substantial amount of debt that accounts for a significant portion of their GDP, this will lower their publicized GDP values and distort their nationalization coefficients. States with powerful banks, such as Luxembourg, Switzerland, and Singapore, tend to possess high levels of debt. This may also hold true for emirates, as they possess both strong financial institutions and low population levels.

[43] Libya's ratio is high because the only available data is from 2011, before Gaddhafi's ousting, and when the average price of Brent Crude traded at $110.66 per barrel.

nationalization coefficients. However, if we look at the nationalized values of these diamond states, we see that Alrosa from Russia produces more diamonds than any other nationalized diamond company, and over twice as much as Endiama. Yet, because diamonds do not play as large a role in the Russian economy as in Angola, its nationalization coefficient is markedly lower.

Next, the present work will conduct a *t*-test for the nationalization coefficient (NC_C) for petroleum (resource = 1) and diamond (resource = 0) states at a 95% confidence interval ($\alpha = 0.05$). The null hypothesis is that the mean of the nationalization coefficient for petro-states is zero. Formally, we would write this as H_0: $\mu = 0$. Naturally, the alternative hypothesis predicts that the mean of the nationalization coefficient is not equal to zero (H_1: $\mu \neq 0$). Below, we have the results from the *t*-test for petroleum and diamond states.

Table 5: T-tests for Nationalization Coefficients for Petroleum and Diamond States

```
. ttest NATIONALIZATIONCOEFFICIENT==0 if RESOURCE==1

One-sample t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
NATION~T |      21    1.059426    .0980279    .4492202    .8549429    1.263908
------------------------------------------------------------------------------
    mean = mean(NATIONALIZATIONCOEFFICIENT)                      t =  10.8074
Ho: mean = 0                                     degrees of freedom =       20

    Ha: mean < 0                 Ha: mean != 0                 Ha: mean > 0
 Pr(T < t) = 1.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 0.0000


. ttest NATIONALIZATIONCOEFFICIENT==0 if RESOURCE==0

One-sample t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
NATION~T |      10    .2678001    .1284399    .4061625   -.0227511    .5583513
------------------------------------------------------------------------------
    mean = mean(NATIONALIZATIONCOEFFICIENT)                      t =   2.0850
Ho: mean = 0                                     degrees of freedom =        9

    Ha: mean < 0                 Ha: mean != 0                 Ha: mean > 0
 Pr(T < t) = 0.9666         Pr(|T| > |t|) = 0.0667          Pr(T > t) = 0.0334
```

From the *t*-tests represented above, we can observe that petroleum states (resource = 1) have a much higher *t*-score than the alpha level would suggest given the 20 degrees of freedom for the test, leading this work to reject the null hypothesis. For petroleum states, $t = 10.80$, $p < 0.05$, supporting the hypothesis that petroleum states are more likely to possess stronger nationalization coefficients than average. On the other hand, diamond states (resource = 0) have both a lower *t*-score and fewer degrees of freedom. Assuming the same null hypothesis (H_0: $\mu = 0$), there is not enough evidence to suggest that diamond states possess strong nationalized industries, thereby supporting the claims made by *Hypothesis 3*.

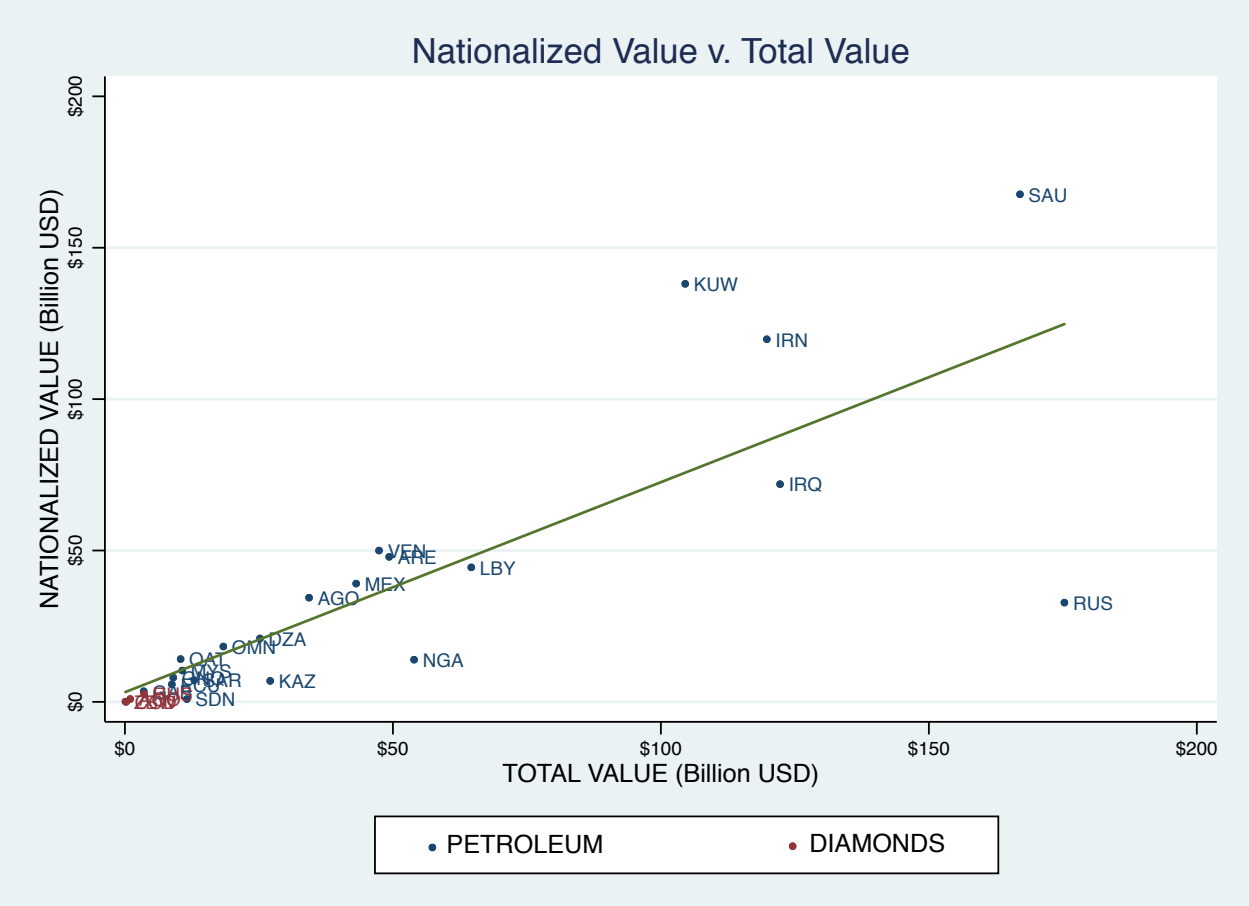
Next, this dissertation will conduct the same experiment using the first ratio of the nationalization coefficient (V_N / V_P). The null and alternative hypotheses along with the alpha level are identical. As we will see below, the results are strikingly similar.

Table 6: T-tests for Nationalized Ratios for Petroleum and Diamond States

```
. ttest RATIO==0 if RESOURCE==1

One-sample t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
   RATIO |      21    .7891232     .077785    .3564556    .6268665    .9513798
------------------------------------------------------------------------------
    mean = mean(RATIO)                                            t =  10.1449
Ho: mean = 0                                     degrees of freedom =       20

    Ha: mean < 0                 Ha: mean != 0                 Ha: mean > 0
 Pr(T < t) = 1.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 0.0000

. ttest RATIO==0 if RESOURCE==0

One-sample t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
   RATIO |      10    .2648716    .1273786    .4028066   -.0232789    .5530221
------------------------------------------------------------------------------
    mean = mean(RATIO)                                            t =   2.0794
Ho: mean = 0                                     degrees of freedom =        9

    Ha: mean < 0                 Ha: mean != 0                 Ha: mean > 0
 Pr(T < t) = 0.9663         Pr(|T| > |t|) = 0.0673          Pr(T > t) = 0.0337
```

As observed from the results above, the *t*-test for 'ratio=0' (V_N / V_P) indicate a similar conclusion as the previous test for the nationalization coefficient. The *t*-score for petroleum states supports the alternative hypothesis that petro-states possess strong nationalized industries, while the *t*-score for diamond states suggests accepting the null hypothesis—their nationalized industries are not much stronger than the mean. To better illustrate the disparity between the nationalized values versus total values in diamond and petroleum states, they will be placed next to each other in a scatterplot while depicting the best-fitting line.

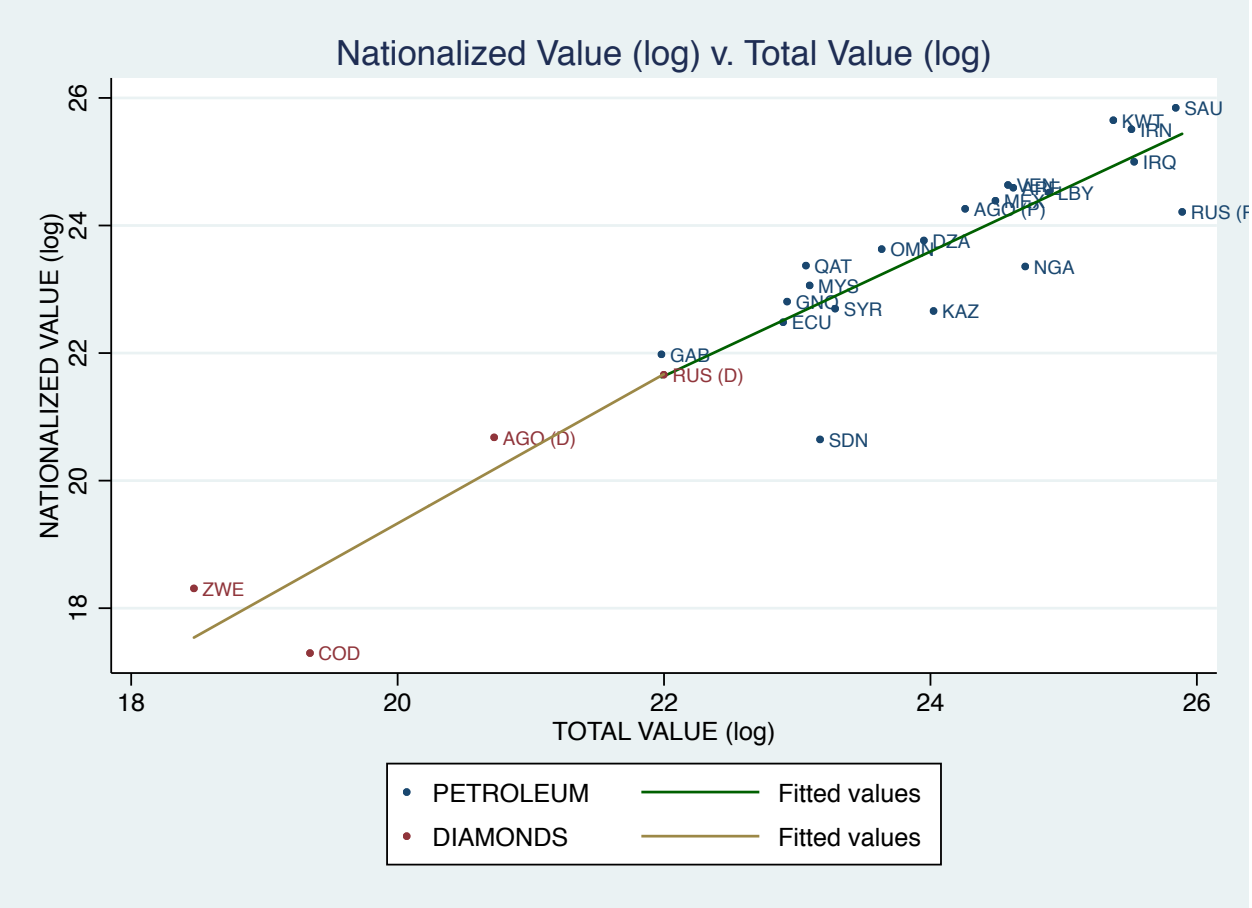
Figure 13: Nationalized Value v. Total Value (2015 US Dollars)



As is clear from the scatterplot above, the diamond states (pictured in red) are clustered in the bottom left-hand corner while petroleum states (blue) are scattered over

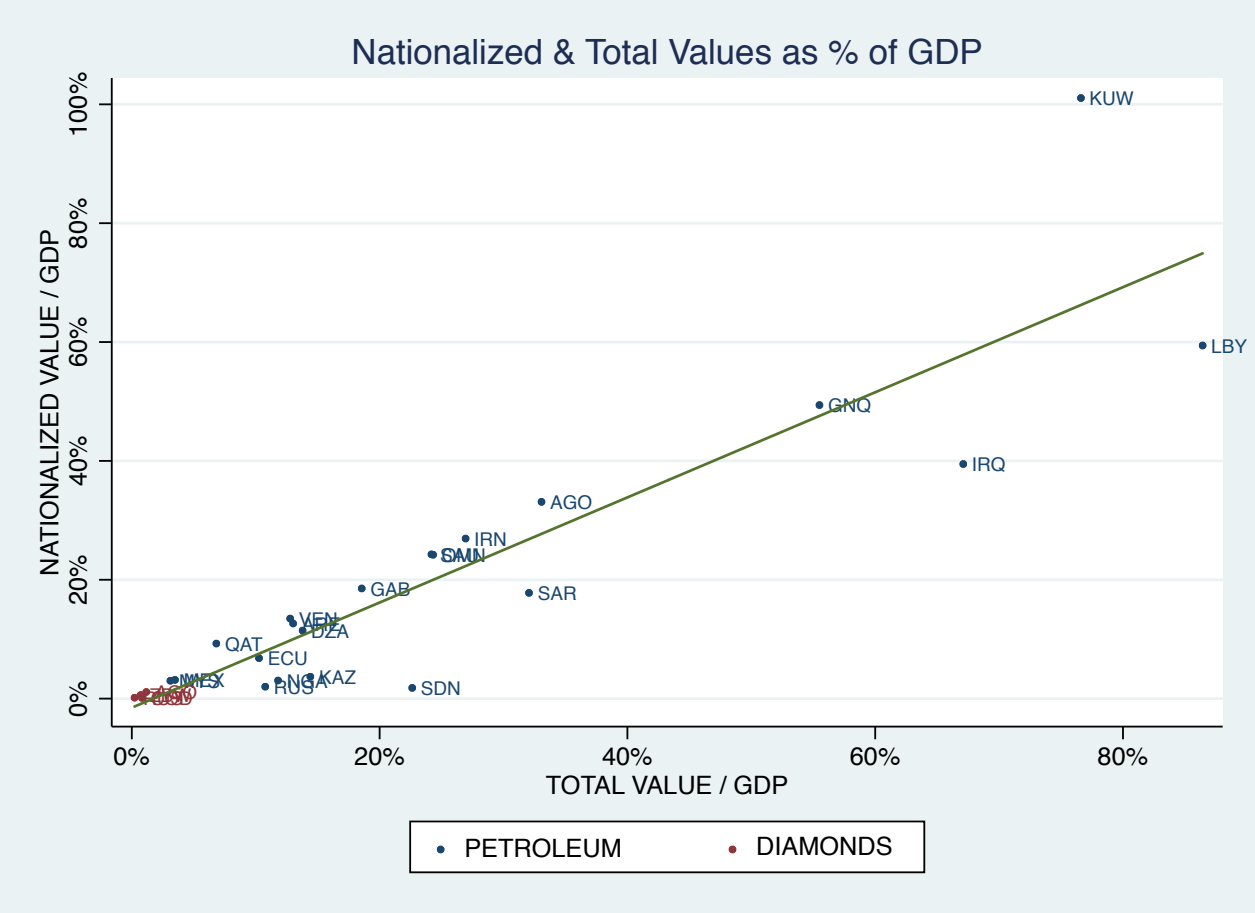
the rest of the chart. From here, the reader can infer the relative 1:1 slope denoting that an increase in the total value of a resource tends to lead to a stronger nationalized industry. Additionally, as has been the pattern with many scatterplots, diamonds do not create such a strong economic engine as petroleum does among resource curse states. While the regression model in this scatterplot is meant to be descriptive, we can make certain predictions as well. Generally, the more resource-rich these states are, the stronger their nationalized industries become. In order to hedge against such disparities among the states in this analysis, this dissertation will take the log of both nationalized values and total values of the resources to determine any patterns among the results.

Figure 14: Nationalized Value (log) v. Total Value (log) in 2015 US Dollars



From this scatterplot, the reader will notice how the diamond states are spread out over the lower half and left parts of the scatterplot while petroleum states cluster in the upper right-hand corner. In order to further illustrate the disparities in strength of the nationalized industries, this work will analyze the nationalized value in comparison to the total value of the resource, both as percentages of GDP. The results are below:

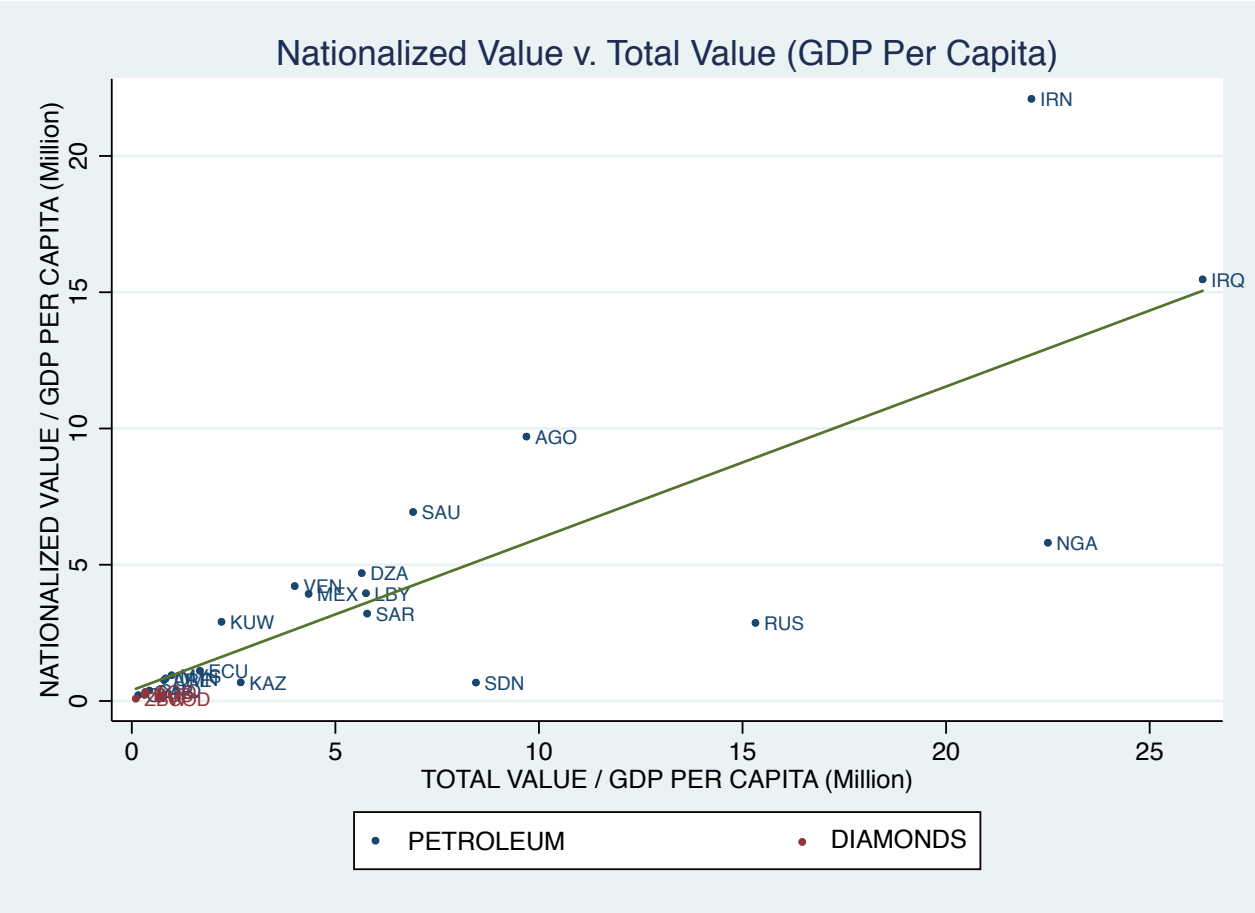
Figure 15: Nationalized Value v. Total Value (as % of GDP)



As *Hypothesis 3* predicts, a similar pattern holds when we measure these variables as a percentage of GDP. Note again how the Kuwaiti NOC, Kuwait Petroleum Corporation, is stronger than the State of Kuwait due to its offshore holdings. We can additionally note how tight these points are to the best-fitting line, indicating a strong

correlation between the two variables.[44] In the next scatterplot, we see the same pattern forming between diamond and petroleum countries, but notice how the states themselves change order.

Figure 16: Nationalized Value v. Total Value (as % of GDP per Capita)

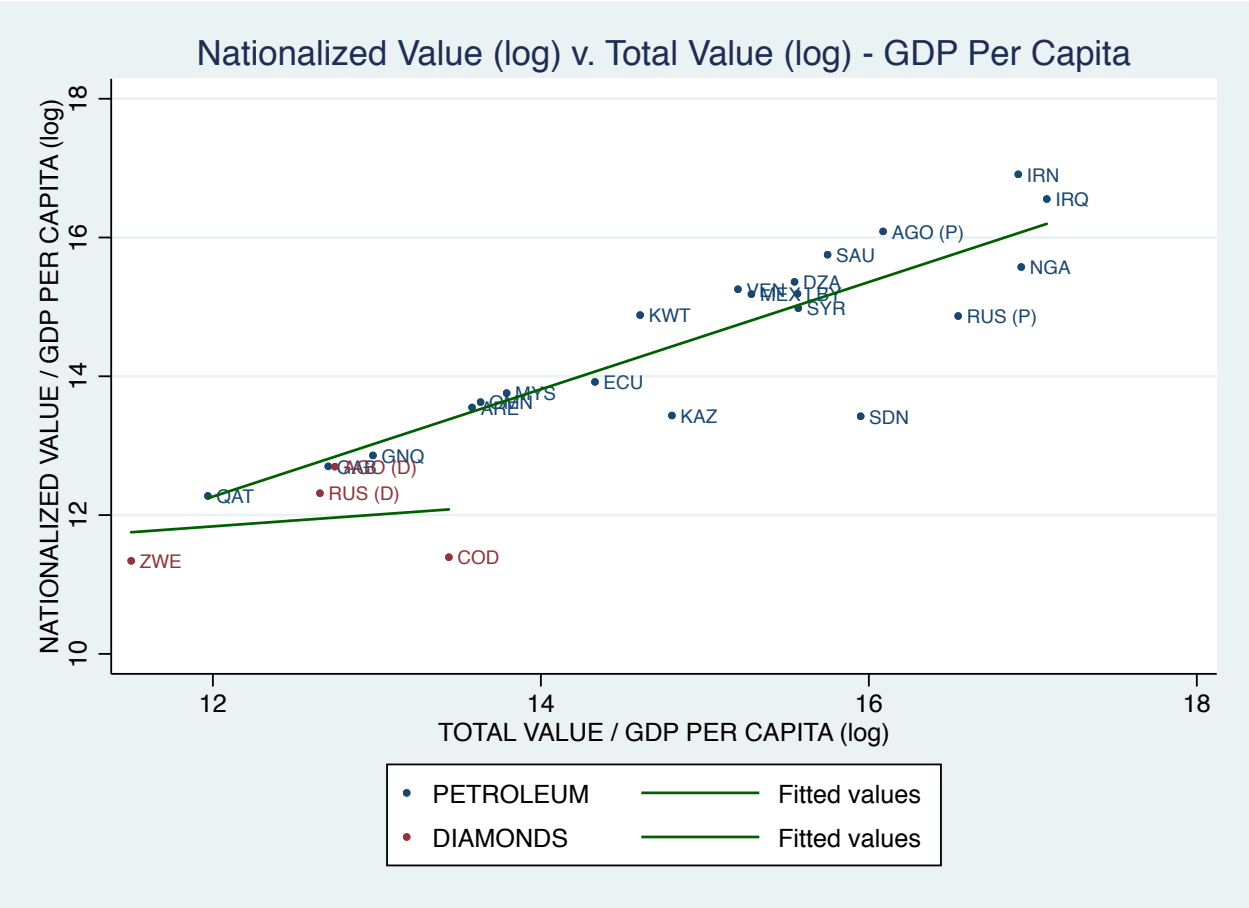


The reader will yet again observe a similar pattern among diamond and petroleum states; but the states themselves appear in a different order. The value of the nationalized and total product for Iran, Iraq, Angola, Saudi Arabia, and Nigeria largely surpass the nationalized and total values of all diamond states. Notice, however, that the richer Emirate states in the Gulf are less influenced by these variables. This is likely due to the

[44] Because this scatterplot measures percentages, it makes little sense to log the values of the variables.

fact that their per capita GDPs are much higher than less wealthy states, such as Nigeria and Iran. Again, due to the clustering of diamond states in the lower left-hand corner, this dissertation will take the log of both variables to better depict the relationship between nationalized values and total values as a function of GDP per capita. It should be noted that despite the more visually appealing logged scatterplots, the raw scatterplots as they appear are just as useful in illustrating the sheer disparity among diamond and petroleum states.

Figure 17: Nationalized Value (log) v. Total Value (log) as % of GDP per Capita



The scatterplot above displays how diamond states are still lagging behind petroleum states in terms of the values of their resources. However, there is a subtler point here: the slope for petroleum states is steeper than the slope for diamond states,

indicating that (likely because) diamonds are not as valuable as petroleum, these states are less likely to promote a strong nationalized industry. On the other hand, because the per capita value of petroleum is much higher for these states, petroleum-rich resource curse states are more prone to strengthening their nationalized industries.

As previously mentioned, the central point of *Hypothesis 3* is to illustrate that possessing a nationalized industry allows the government options in how to wield its power. As we can plainly see, petroleum states have that option, while diamond states generally do not. This temptation allows petroleum states to take a drastically different path in resource management than diamond states, as partially evidenced by the Venezuelan and Tanzanian cases in *Hypothesis 1*. Once again, strong NOCs do not necessarily indicate a resource curse, they simply indicate the pathway a state is on; whether or not a state experiences a resource curse is contingent upon the management and distribution of collected rents, and is outside of the scope of this dissertation. What these results point to is how this pathway for petroleum states is wide and tempting, while no such option exists for diamond states.

This dissertation is breaking down the difference between the nationalized industries of diamond- and petroleum-rich resource curse states into two more graphs. When only looking at petroleum states, it turns out that there is a correlation between possessing large petroleum reserves and strong nationalized industries, as shown in the small scatterplot below (*Figure 18*). The same holds true for diamond states (*Figure 19*), though these results are not particularly conclusive as there are only four cases. The larger scatterplot, *Figure 20* aggregates both diamonds and petroleum into one scatterplot.

Figure 18: Total Value v. Nationalization Coefficient (Petroleum States)

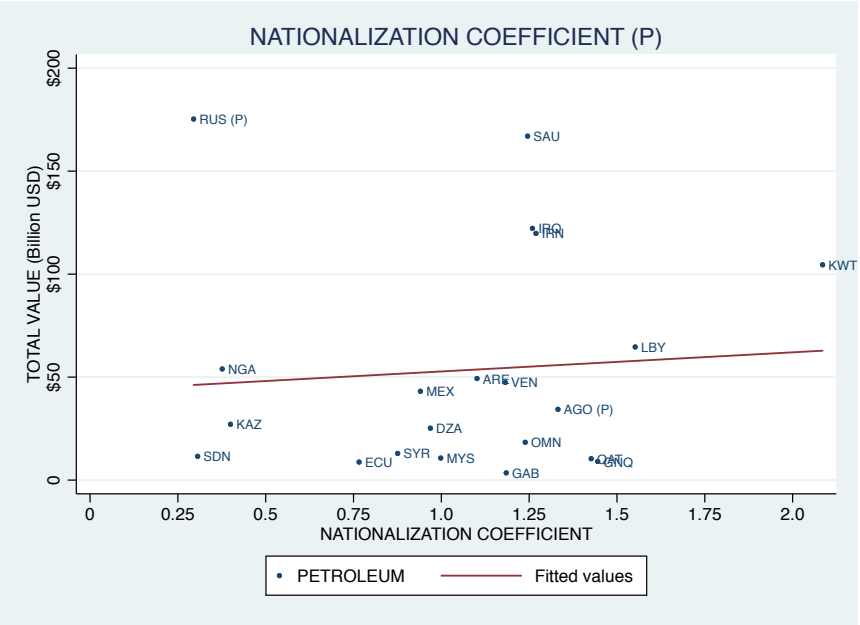


Figure 19: Total Value v. Nationalization Coefficient (Diamond States)

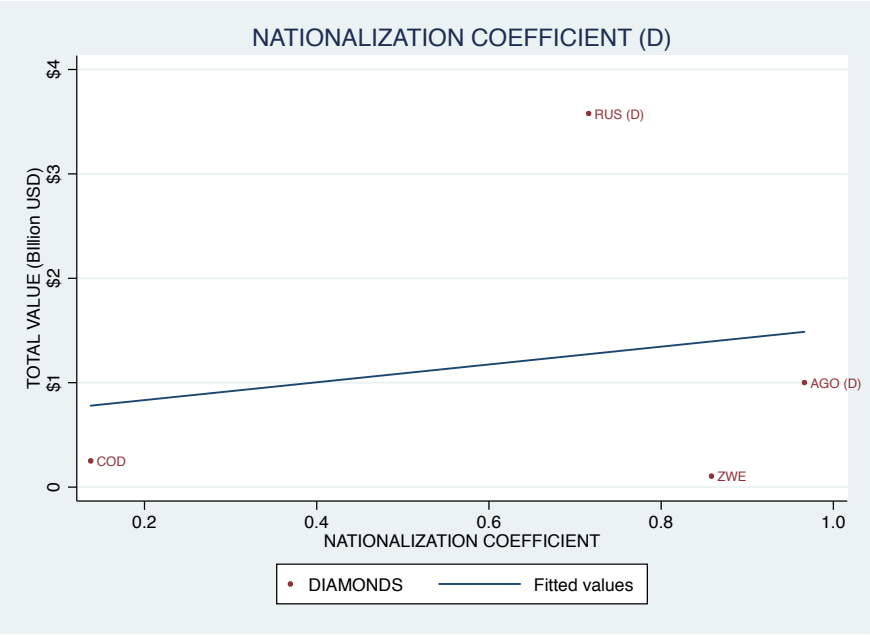


Figure 20: Total Value v. Nationalization Coefficient (All States)

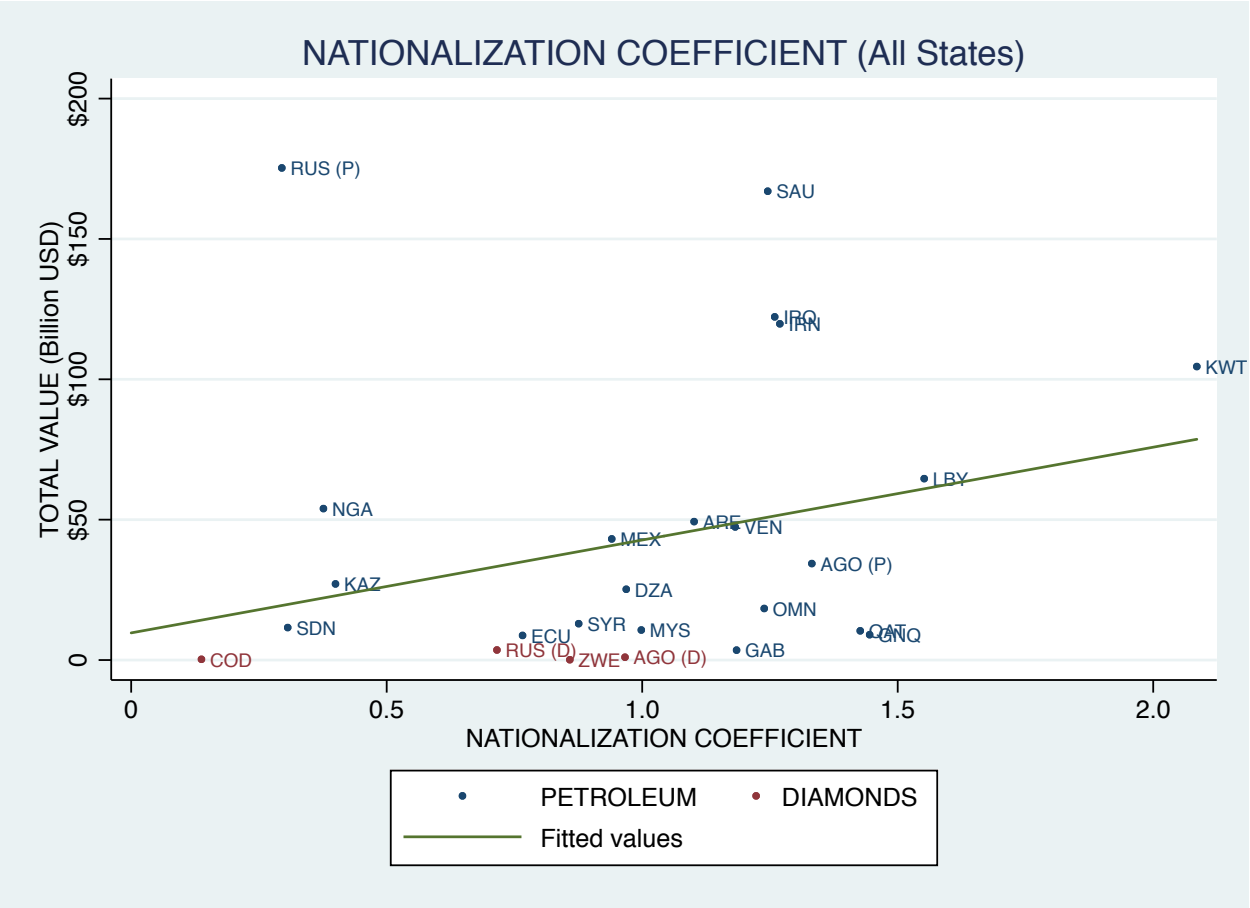


Figure 18 shows a positive relationship among resource curse states between values of petroleum production and the corresponding nationalization coefficient. The same holds true for diamond states in the subsequent scatterplot. When analyzing both states together, we not only register the relatively small rents generated from diamond states, but can also view how no diamond state has a nationalization coefficient of greater than 1.

When analyzing petroleum states, we see another example of resources influencing political decision-making. Petroleum was discovered *first*, then (*second*) states decided to nationalize their industries. As can be discerned from the scatterplots above, the same held true for diamond states. This could have been for a whole host of

political, economic, or even social reasons (e.g., power to embargo Western states for their support of Israel during the 1973 Arab-Israeli War). Those petro-states with the highest nationalization coefficients—Kuwait, Libya, Equatorial Guinea, Qatar, Angola, Iran, Iraq, Gabon, Venezuela, and UAE—by no coincidence are OPEC-member states. Nigeria stands out as the only OPEC state without a strong nationalization coefficient. These states would only join OPEC, and nationalize their oil industries if they had plenty of petroleum in both total value and as a percentage of their GDP, as possessing a strong and economically-necessary resource base would incentivize states to cartelize. For its part, Russia's Rosneft is notoriously weak compared to other Russian giants, such as Lukoil and Gazprom.[45] Ironically enough, Russia's Alrosa has a near monopoly over Russian diamond production. Yet even so, Alrosa's production value holds at $2 billion, while Rosneft, though nowhere near as prominent, manages to produce $32 billion annually.

To further support the scatterplots above, two more *t*-tests will be conducted comparing the strength of nationalized industries in diamond and petroleum states. First, this dissertation will conduct a difference of the means test between the nationalization coefficients in resource curse states at a 95% confidence level to ascertain if there are any statistically significant differences among diamond and petroleum states. The null hypothesis (H_0: $\mu = 0$) is that the difference of the means between diamond states (coded

[45] Gazprom is technically a private joint-stock company, but the Government of Russia holds 38.37% of its shares, while two Russian-owned subsidiaries own a purposeful number of shares: Rosneftgaz holds 10.97% and Rosgazifikatsiya owns 0.89%. Combined, these bodies own 50% of this company (Gazprom 2017). It remains unclear if the Government of Russia receives rents from Gazprom revenues. For this reason, combined with the fact that it focuses much of its efforts on natural gas, and not petroleum, it is not included as a nationalized oil company.

as 0) and petroleum states (coded as 1) would be zero. The alternative hypothesis (H_1: $\mu \neq 0$) expects a statistically significant difference of the means between diamond and petroleum states.

Table 7: Difference of the Means Test – Nationalization Coefficient (V_N / V_P) + (V_P / GDP_C)

```
ttest NATIONALIZATIONCOEFFICIENT, by (RESOURCE) level(95)

Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      10    .2678001    .1284399    .4061625   -.0227511    .5583513
       1 |      21    1.059426    .0980279    .4492202    .8549429    1.263908
---------+--------------------------------------------------------------------
combined |      31    .8040625    .1024741    .5705517    .5947824    1.013343
---------+--------------------------------------------------------------------
    diff |           -.7916254    .1676366               -1.134481   -.4487701
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -4.7223
Ho: diff = 0                                     degrees of freedom =       29

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0000         Pr(|T| > |t|) = 0.0001          Pr(T > t) = 1.0000
```

As the reader can observe from the *t*-test above, there is a statistically significant difference in the means (-0.7916) between diamond and petroleum states at $p < 0.001$. Diamond states possess a mean μ_d of 0.2678 and petroleum states enjoy a mean μ_p of 1.059, implying that there is indeed a statistically significant difference between diamonds and petroleum, with oil having a significantly larger coefficient and diamonds correspondingly possessing a significantly smaller coefficient. The average petro-state in this analysis has a relatively strong nationalized industry ($NC_C > 1$), while diamond states have comparably weaker nationalized industries ($NC_C < 1$).

Next, this assessment is going to conduct the same *t*-test for the first ratio of the nationalization coefficient—the value of the nationalized industry's production divided by the value of total state production (V_N / V_P) to determine if there are any statistically significant differences among diamond and petroleum states. The null hypothesis (H_0: $\mu = 0$) is that there will not be a statistically significant difference in the ratio of the

nationalized industry (V_N / V_P) between diamond- and petroleum-rich resource curse states, whereas the alternative hypothesis (H_1: $\mu \neq 0$) expects statistically significant differences between the means.

Table 8: Difference of the Means Test - Ratio (V_N / V_P)

```
ttest RATIO, by (RESOURCE) level(95)

Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      10    .2648716    .1273786    .4028066   -.0232789    .5530221
       1 |      21    .7891232     .077785    .3564556    .6268665    .9513798
---------+--------------------------------------------------------------------
combined |      31    .6200098    .0794017      .44209    .4578498    .7821697
---------+--------------------------------------------------------------------
    diff |           -.5242516    .1427194               -.8161456   -.2323575
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -3.6733
Ho: diff = 0                                     degrees of freedom =       29

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0005         Pr(|T| > |t|) = 0.0010          Pr(T > t) = 0.9995
```

Once again, the results from this *t*-test further support *Hypothesis 3*'s postulation that petroleum resource curse states possess stronger nationalized industries in relation to the total resource industry. The reader will notice a statistically significant difference (-0.5242) of the means at $p < 0.001$, with diamond states having a mean μ_d of 0.2648 and petroleum states with a comparably stronger mean μ_p at 0.7891. These results suggest rejecting the null hypothesis, thereby supporting the alternative hypothesis.

As previously hinted, the results from these *t*-tests may be due to the value of the resource and the subsequent incentive to cartelize into international organizations, such as OPEC. Specifically in regards to OPEC, nationalizing member states' oil industries makes a lot of sense. It would be very difficult, if not impossible, to coordinate a successful embargo if states liberalized their oil industries. While normative questions on whether or not a state ought to nationalize resource industries is beyond the scope of this dissertation, the general point stands: by possessing the capability to nationalize their oil

industries for large profits, petroleum states are susceptible to fundamentally different problems and dilemmas than diamond states, which neither have the inclination nor the profitable resources to develop strong nationalized industries. This result runs against contemporary scholarly trends suggesting that there is a fundamentally social underpinning to policymaking, including decision-making processes that lead to a resource curse. Whereas the current narrative suggests a 'turtles all the way down' theme in resource curse literature (and social sciences in general), these results do not seem to support such a hypothesis. In the case of *Hypothesis 3,* first came the resource, then the policy (then the curse). Naturally, some petro-states create good policies aimed at benefiting their populace, while others take a more populist approach, which benefits incumbents' short-term goals at the expense of long-term benefits to the public. Missing from the discussion, of course, is every diamond state that had no opportunity to either develop a country-saving Equinor in Norway or a political arm of an increasingly autocratic regime, such as PDVSA in Venezuela. Because of the low-dollar value of diamonds in comparison to petroleum, combined with the fact that the world economy is pinned upon the latter, diamond states cannot nationalize their industries nor wield similar economic power over the West as petroleum states have done (e.g., the 1973 and 1979 oil embargos). This is the peculiar curse diamonds states must bear—their resource is not profitable enough to raise themselves out of poverty, yet it remains lootable enough to entice gangs and rebels to engage in illicit activity and fund rebellions.

In the final hypothesis testing the political resource curse, this work will assess potential differences between diamond- and petroleum-rich resource curse states in

relation to the enforcement of their property rights, predicting that petroleum-rich states will enforce property rights more than their diamond-rich counterparts.

Testing Hypothesis 4

Petroleum-rich states are more likely to exercise stricter property rights than diamond-rich states.

This hypothesis is geared to illustrate differences among diamond and petroleum states *vis-à-vis* the enforcement of property rights within their states. As will be expanded upon later on, strong property rights enforcements are necessary, but insufficient conditions for evading the resource curse. However, suffering from weak property rights enforcement allows for 'might is right' practices to the dictate resource extraction process, thereby allowing strongmen or gangs to exploit weaker groups. All of the hypotheses testing the political resource curse are aimed at triangulating differences between diamond- and petroleum-rich resource curse states. As part of this effort and to avoid collinearity among this work's hypotheses, *Hypothesis 4* examines a very different facet of the inner workings of resource curse states—property rights enforcement. In testing government-MNC strife, strength of the resource class, strength of nationalized industries, and enforcement of property rights, this chapter seeks to shed light on differences among the inner workings of diamond- and petroleum-rich resource curse states over time. Similar to other hypotheses, this postulation attempts to evaluate divergences in governing practices among petroleum and diamond states. *Hypothesis 4* is grounded on the material differences between petroleum and diamonds, suggesting that these differences contribute to the disparity in resource curses states experience. This is

the final politically-based hypothesis designed to show how diamond- and petroleum-rich resource curse states experience different resource curses. Again, this hypothesis is specifically designed to assess state actions at a certain crossroads—in this case property rights enforcement—to analyze whether diamond and petroleum states react differently because of the resources they possess. *Hypothesis 4*, similar to the other political resource curse hypotheses, analyzes an esoteric and isolated variable of the resource curse in an attempt to triangulate how diamond- and petroleum-rich states suffer from curses in distinct manners. Furthermore, this work is seeking to avoid collinearity among its hypotheses. While it is always tempting (as this dissertation does for *Hypotheses 2* and *6*) to compare petroleum and diamonds only in terms of their monetary value, a vital part of the *theory of resource curses* is pinned on how the material differences between petroleum and diamonds leads states to adopts different paths in their tracks in or out of the resource curse.

With this in mind, there are two major material differences between petroleum and diamonds. First, as is clearly evident by the price, diamonds are scarcer than petroleum. However, because they last forever, as the saying goes, private companies can keep them off the market to maintain prices synthetically inflated. Additionally, because diamonds are small, they can be stored in relatively compact and secure locations, which would decrease costs for the extracting company; it is also for this reason that they are considered to be lootable. Obviously, petroleum can be stored for thousands of years in the right conditions, but after it is extracted, crude oil is exposed to light and air, which begins to photochemically degrade and evaporate, meaning that it must be consumed in a timely fashion. The second major difference is deceptively simple and obvious, but it is

what *Hypothesis 4* is concerned with—oil is a liquid and diamonds are solid. Because diamonds are solid, they cannot leak or evaporate as petroleum does once they are mined. This also means that diamonds cannot be moved through pipelines in the same way petroleum and natural gas is transported.[46] While *prima facie* this hypothesis may be of little consequence, there may be long-lasting governmental responses to such a simple difference in resource, namely in the form of property rights.

Especially in the Arabian Peninsula, petroleum states originally made little effort to delineate their territories before the oil era. Yet after Arabian sweet petroleum became a major export, these states made considerable strides in defining frontiers, sometimes leading to border disputes (IBP 2011:103). Qatar, for example, had border issues with its neighbor Bahrain, which was finally settled in 2001 by a World Court order[47] (Peterson 2006:742). At the sub-state level, there is a vibrant literature on the evolution and enforcement of property rights, which will be examined in greater detail before testing this hypothesis.

Hypothesis 4 predicts that the liquid nature of petroleum would incentivize oil states to create stricter enforcements of property rights, so as to avoid future quarreling among parties. As diamonds are solids and found in high concentration in mines, the hypothesis maintains that they will be clustered in one location and not be as contentious as drilling for oil. Mining for diamonds can be restricted to one relatively concentrated location without infringing upon the property rights of others. The same cannot be said

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[46] Distinguishing oil from the world's former largest energy source, coal, is petroleum's mobility; it can be pumped and transported through pipelines rather than carted on wagons (Strange 1999:193).

[47] Qatari-Bahraini relations considerably improved after the dispute and currently there are projects underway to connect the two countries with a 'Friendship Bridge.'

for an oil field, however. To think of an oil field as a subterranean pool of fossil fuels would be a mistake. Rather, petroleum is found embedded in between multiple layers of rocks, all of which are at different strata below the surface. Even the word 'petroleum' lends to this reality, stemming from the Greek word for rock, πέτρα (*petra*), and the Latin word for oil, *oleum*. Fields of this 'oil in between rocks' can encompass many different properties, and a company drilling for petroleum in one site potentially influences the property value of other sites, especially if companies begin drilling horizontally under the surface. It is in instances such as these that the 'I drink your milkshake' logic from *There Will be Blood* comes into play,[48] as do the specific property rights associated with petroleum extraction.

There are a few assumptions and contentious points that must be addressed for this hypothesis. The first assumption is that property rights are fluid and change over time. This hypothesis actually presumes that their enforcement would change contingent upon the resources discovered in the state. Second, the assumption is that former colonial powers, such as Britain and France, would leave their footprint in their colonies, which would, in turn, mimic the laws and rights enforcements of their former colonizers. Due to this, *Hypothesis 4* will test colonial property rights using a slightly different formula than non-colonies, such as Russia. A caveat is needed here: this colonial influenced formula only applies to states that gained their independence after WWII. Some states, such as Venezuela and Mexico, were Spanish colonies that fought for independence from the

[48] In the final scene of this film, the main character, masterfully played by Daniel Day-Lewis, hints at the importance of property rights in the petroleum industry by screaming that if a company buys a lot near an oil field, they can figuratively take a big straw and drink someone else's milkshake.

crown in the early 19th century. While it is clear that Spain left its imprint over these states, mass extraction of oil and diamonds did not proliferate until the 20th century.

Another point deserves to be made. States enjoying strong enforcements of property rights are not immune to resource curses. Dozens of democratically elected governments suffer from increasingly populist governments and a growing rate of inequality, despite (or, according to some, due to) strictly enforcing their property rights. However, resource curse states suffer weaker property rights enforcements *in relation to* their resources. As Wenar (2008) notes, the major flaw in international trade is that consumers buy stolen goods every day, sometimes taken from the poorest people in the world; these goods "flow through the system of global commerce under cover of a rule that is little more than a cloak for larceny" (2008:2). In this sense, the globalization movement that has anchored the economic world since the 1970s, has not only created inequality along global lines, it potentially violates the rule of property rights among mineral-rich states. Authoritarian governments, rebel gangs, and crooked bureaucrats may smuggle, steal, or sell a state's natural resource base. In these scenarios, loose property rights enforcements would facilitate such activities for stronger parties, while exploiting the work of weaker groups. Scholars have noted how this phenomenon leads to suboptimal resource distribution and economic underdevelopment, ultimately contributing to a resource curse (Wenar 2008; Hodler 2004; Frankel 2010; Besley & Ghatak 2010; Persson 2005). Alternatively, mineral-rich states with strong property rights may escape the resource curse, such as in the case of Botswana (Hodler 2004:2). However, as this hypothesis will later depict, possessing strong property rights enforcements do not render a state immune to the resource curse; many states, especially

in the Gulf, enjoy relatively strong property rights enforcements yet suffer from undemocratic monarchies and political underrepresentation for minority groups and immigrants.

It is important to note that this hypothesis does not measure property rights per se; it measures property right *enforcement*. The data is taken from the Heritage Foundation, and, in their words, these datapoints measure "the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. It also assesses the likelihood that private property will be expropriated and analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts" (Heritage 2018). It is important to note here that property rights extend further than simply land rights; rather, property rights are those rights individuals enjoy in owning possessions, whatever they may be. Land rights, which is what this hypothesis is basing its theory on, comprises the core of property rights enforcement, but these rights may extend to non-land possessions, such as diamonds. Of note, a spillover effect from land rights to other property rights is assumed, as states adopting strong land rights tend to espouse equally strong general property rights enforcements.

Finally, even though a state's former colonizer may influence their original property rights, the enforcement of said rights remains largely in the current government's control. Yet, the thought process remains the same for colonial powers—if the former colonial power did not enforce property rights, it seems likely that the colony would follow it their footsteps. By the same token, when accounting for the property rights enforcement of the former colony, the data assesses *current* property rights

enforcement, and not those from the early 20th century. While this is nowhere a perfect measurement, and cannot encompass the horror that many African states experienced under French, Belgian, and British rule during the early 20th century, this dissertation is using this extra variable as a way to control for the direct colonial influence over some states in this analysis. Even though this dissertation cannot perfectly account for a state's property rights trajectory over time, and property rights may be partially determined before oil or diamonds were discovered, the enforcement of these rights remains a current issue, with consequences that may extend beyond the resource industry.

Before comparing the differences in diamond and petroleum states regarding property rights enforcement, the current work will present a brief literature review on the topic, and pinpoint where *Hypothesis 4* is integrated in the current literature. The literature review below is specific only to this hypothesis, and since it is not immediately related to the study of the resource curse, it will be presented as part of this hypothesis and not in *Chapter 2*.

There are two legal doctrines surrounding the extraction of petroleum—the rule of capture and the correlative rights doctrine. As the name suggests, the rule of capture establishes ownership of a resource if caught in one's own property, even though, in the case of oil, that resource may have been drained from another's property. Unlike the 'finders keepers' logic associated with rule of capture, the correlative rights doctrine limits the rights of landowners to whatever a 'reasonable share' is determined to be. In this spirit, the Texas Railroad Commission developed conservation laws to limit oil well production, a move that would later be copied by many resource curse states, contributing to the inclusion of *Hypothesis 4* among the testable predictions in this dissertation. As we

will later observe, the American oil industry property rights evolution, largely taken from the Texas Railroad Commission, would become a model for the developing world. The hypothesis expects that because of petroleum's large-scale grabs, combined with the fuzzy rights nature of extraction, petroleum-rich states have had no choice but to develop stricter and more complicated property rights laws. On the other hand, because of the relatively simple nature of diamond extraction, these states have not needed to develop or enforce such advanced property laws.

There are two primary trains of thought in the formation and evolution of former colonial states. One doctrine, espoused by Engerman and Sokoloff (1997), and later joined by Acemoglu, Johnson, and Robinson (2001), believed that initial property rights to be determined by the amalgamation of land, labor, and the environment. Yet, after the initial property rights were established, they morphed contingent upon economies of scale, such as in Latin America, where the emerging property rights reflected characteristics of inequality and economic exploitation (Alston, Harris, & Mueller 2012:2). Conversely, in many states with small-scale agricultural economies, initial property rights exhibited a more egalitarian approach, so as to benefit many small-scale farmers. Early property rights became key determinants in power within the policymaking process, evolving into a strong force determining power distribution over time. This "persistence works through the choices of immigration, education, and land policies as well as the franchise, and patterns of banking and capital formation, *inter alia*, so that colonies which started with unequal and exclusionary arrangements would continue to have those same characteristics whereas those that started with greater equality and inclusion saw those same characteristics persist and pervade their future

societies" (Alston, Harris, & Mueller 2012:2-3). One potential outcome of this developmental pattern is a 'reversal of fortune,' where the colonies with fewer economic opportunities ended up developing faster than others because the "equality and openness of its property rights institutions are seen as being more conducive to entrepreneurship, innovation and wealth accumulation" (Alston, Harris, & Mueller 2012:3).

The second approach to property rights in developing states values the political economy of these states more than any physical or technological endowment at the initial stages of property rights development. Nugent and Robinson (2005) argue that the physical and endowments of colonies in Latin America[49] were very similar when they first gained their independence. Rather, for these scholars, the decisive determinants in these states were the political economies they employed rather than initial endowments. Common to both strands of thought is that "although initial factor endowments are crucial determinants of the property rights that emerge, and although those initial institutions do tend to be highly inertial, this does not preclude other forces from dramatically altering the path of development along the way" (Alston, Harris, & Mueller 2012:4). While these two schools of thought disagree on the effects of initial endowments, they agree on the evolution of property rights over time. When we apply these schools of thought to the resource extraction industry, we can better grasp how property rights may be enforced differently in diamond and petroleum resource curse states, leading to their current (non)enforcement.

[49] Even though their scholarship focused on Central and South America, the logic may also apply to West African states in this dataset, such as Guinea, Sierra Leone, Liberia, Ghana, and Equatorial Guinea, which possess similar physical and technological endowments.

In 1967, Harold Demsetz developed a now well-known theory on the evolution of property rights, advancing the concept that the development of property rights extends from price changes and how we use goods (Demsetz 1967). Libecap and Smith (2002) expand this notion, finding an evolutionary pattern supporting Demsetz's predictions in the US oil and gas industry. They show how "the process of institutional change is affected by political demands from competing constituencies in ways not anticipated using a strict balancing of economic costs and benefits" (2002:590). In the United States, "it is not just technology and the level of prices but the unpredictability (volatility) of relative prices that has shaped the development of property rights to petroleum resources" (2002:590). Nineteenth century oil extraction operated largely by the anarchic laws of the 'Wild West,' where companies sought out crude petroleum without too many laws governing their extraction. When this became unsustainable, companies began to seek for different extraction methods, with increased governmental regulation. Twentieth and twenty-first century petroleum extraction has been characterized by buyouts (where a single producer buys the competition's oil wells) and unitization, "in which the separate producers exchange their individual holdings in the reservoir for shares of a single, commonly managed enterprise that encompasses the entire pool" (Libecap & Smith 2002:590).

Petroleum becomes inefficient if too many wells are placed next to each other, as their production volume decreases with every new well. Due to this decrease in volume, placing a well at the edge of one property may adversely influence the extraction of petroleum in a neighboring property. Furthermore, "it became known that drilling too many wells in particular parts of a reservoir could cause reservoir water or gas to break

through the producing column of oil, thus trapping significant volumes of unrecoverable oil" (Libecap & Smith 2002:593). In their history of the evolution of the petroleum industry in the United States, Libecap and Smith (2002) note how regulatory agencies, such as the Texas Railroad Commission, began setting production levels and restricting producer's rights in extracting from the common pool of petroleum, thereby limiting the scope for the negotiating of private contracts (2002:594).

In its nascent stages, the petroleum industry was painfully susceptible to boom and bust, contingent upon the inconsistent demand, supply-side shortages, and tariffs blocking imports of foreign oil into the United States. Although the Texas Railroad Commission grew haphazardly, it rewrote "the book on production and even, to some degree, on what constituted 'ownership' of oil reserves. […] And it established a new direction for the American oil industry. Many years later, others operating on an even larger scale would seize on it as a compelling model" (Yergin 1992:241). These 'others' Daniel Yergin was referring to was OPEC, and the 'larger scale' was the quotas the cartel had set up to limit production. Libecap and Smith consider these per-well quotas as property rights, encouraging waste, but becoming a staple feature of regulation (2002:595). The US may have influenced OPEC-member states in its involvement—some call it regulation—in resource extraction industries. There are some differences: since the time of the Romans, governments have laid claims to mineral rights found under private property, but two major exceptions to this rule are the United States and Canada. The California and Klondike Gold Rush forced the American and Canadian governments to grant mineral rights to those who bought the land, thereby encouraging the settling of California and the Yukon (Ross 2012:33-34).

While petroleum extraction is governed by two competing doctrines firmly delineating property rights, diamond state property rights play by different rules. Artisanal diamond mining (ADM), the low-grade diamond mining done in remote rural regions of resource curse states by peasants with rudimentary equipment, has recently taken center-stage in diamond mining property rights research. In Liberia, for example, USAID's Property Rights and Artisanal Diamond Development (PRADD) has reviewed the legal and regulatory framework governing this diamond-rich resource curse state.[50] According to USAID, in the "absence of artisanal mining regulations, the terms and conditions that accompany a Class C ADM license are unclear and contradictory in key areas, or have no basis in law. Miners are uncertain about the license application process and find it complicated and expensive to comply" (USAID 2011:vi). USAID further comments, "Liberian law presently only recognizes formally registered private property rights. All unregistered land is treated as 'public land,' which GOL [Government of Liberia] can sell or encumber with long-term leases and concessions for natural resource exploitation (USAID 2011:vi). Consequently, rural communities do directly benefit from diamond extraction in their communal land. This phenomenon is not limited to Liberia.

For example, in Sierra Leone scholars have noted that not only is a post-conflict development plan necessary to remove Sierra Leonean reliance on natural resources, but also a fundamental redefinition of the property rights involved (Powlick 2005:4). The Revolutionary United Front (RUF) managed to seize control of Sierra Leone's diamond-producing region because property rights enforcement in the state was so weak. While Sierra Leone's property rights may seem anarchical, other states, such as Tanzania,

[50] PRADD originally began as a pilot program in the Central African Republic and then spread into other African states.

considerably restrict land ownership. According to the US Department of State's Office of Investment Affairs, all land in Tanzania belongs to the state. While there may be procedures for obtaining leases and certificates of occupancy, they are often lengthy and handled manually at the local level. In order to conduct business in Tanzania, foreign investors "may occupy land for investment purposes through a government-granted right of occupancy, or through sub-leases through a granted right of occupancy" (OIA 2016b). Foreign investors, such as diamond companies, can partner with leaseholders to obtain land access. While, according to the OIA, Tanzania leases land for up to 99 years, it is illegal for locals to sell land to foreigners.

Property rights enforcement is not much better in Cameroon. GAN Integrity Solutions, a Danish professional services firm, warns that in Cameroon, companies should beware "that legal rights, including contract and property claims, can be difficult to protect due to extensive corruption in courts," which are unreliable, very slow and selective in enforcing legislation (GAN 2017; ICS 2016). Furthermore, the process of acquiring property remains problematic in Cameroon, as corruption is widespread and enforcement of legislation is inconsistent. This effect is compounded by the reality that nearly "half of businesses expect to give gifts in order to get a construction permit" (GAN 2017; Enterprise Surveys 2016). Gifts to Cameroonian officials are one thing, but the economic crisis, spurred by hyperinflation, reveals a gloomy outlook for Zimbabwe.

The pre-Mugabe days in Zimbabwe depicted a system of property rights that was largely adequate, though highly colonial-based.[51] However, with recent hyperinflation reaching upwards of 11 million percent, property itself largely disappeared. This has led

[51] Even Zimbabwe's former name, Rhodesia, likened after Cecil Rhodes, the founder of De Beers, is a testament to Zimbabwe's colonial past.

to unofficial land grabs, poaching wildlife (sometimes for sustenance in the case of Zimbabweans and sometimes by illegal hunters from South Africa), and lack of investment in infrastructure and agricultural projects (Bate 2006).

Tetra Tech, a leading consulting and engineering firm, explains how artisanal miners only generate around 9% of total diamond profits from the mines they extract (Tetra Tech 2018). Partially in response to this, USAID has also doubled their commitment to artisanal diamond mining property rights—PRADD II—in Côte d'Ivoire and Guinea, both resource curse states. As for Tetra Tech's part, they are basing their "approach on the premise that secure property rights create positive incentives for miners to be good stewards of the land" (Tetra Tech 2018), thereby offering ADM workers stakes in their labor. Yet, for the purposes of this dissertation, the only reason for a consulting and engineering company to get involved in such a messy prospect as artisanal diamond mining is because these states have not developed (or have not sufficiently enforced) property rights for extraction industries.

Out of Africa, Guyana's private property enforcement is not encouraging for industry. The US Office of Investment Affairs laments that Guyana's property rights system "is overly bureaucratic and complex, with regulations that are overlapping and competing, overloaded, and nontransparent" (OIA 2016a). The office further comments that this influences proper effectiveness and enforcement of property rights. Meanwhile, the judicial system is generally understood to be ineffective its enforcement of legal contracts.

In light of the anecdotal cases above, *Hypothesis 4* seeks to disaggregate the property rights enforcement difference between diamond and petroleum states. Due to the

tricky distinctions between the rule of capture and the correlative rights doctrine, petroleum states have been forced to develop intricate property rights laws, or else suffer dire consequences. Diamond states never had to deal with such contentious policies, and have therefore developed laxer property rights.

There is some anecdotal evidence to suggest that diamond states listed in this analysis have looser conceptions of property rights. PRADD's work in Africa is an outcome of this. Meanwhile, the evolutionary history of property rights concerning petroleum extraction in the United States may be symbolic of a larger phenomenon worldwide. Discrepancies in the right of capture and correlative rights doctrine suggest that petroleum discoveries may compel governments to create stricter property rights laws, especially in light of the Texas Railroad Commission's unknowing influence over OPEC. While US petroleum property rights may be relatively strict, it is worthy to note that most states consider subsoil minerals to be the property of the state and not accessible to private ownership. That said, many petro-rich states grant concessions to NOCs and IOCs for petroleum extraction, suggesting that there may be significant unitization of oil blocks. With this in mind, *Hypothesis 4* seeks to answer the question: does the quantitative evidence match the anecdotal cases presented above?

The section below specifies why certain variables are accounted for in this analysis, beginning with land area. Resource extraction may play a role in property rights enforcement, but there is also academic literature suggesting that developing formerly rural areas may also have an influence. According to Tuan (1974), Hummon (1992), and Hiss (1990), individuals form an emotional attachment to the physical landscape around them, rendering resource extraction in formerly rural areas as problematic. Furthermore,

areas with a high density of resources, such as diamond mines, may lead to suboptimal results. Buonanno et al (2012) depict how weak property rights enforcement protecting Sicilian sulfur mines contributed to the rise of the mafia. Olstrom and Schlager (1992:249) find that owners are not the only resource users making long-term investments in improving resource allocation, lending credence to the externalities of property rights enforcements across non-resource industries. This further supports the logic that there may be a spillover effect from resource-based land rights to other property rights enforcements. Along a slightly different track, it behooves the analyst to control for area when comparing large states, such as Russia, with smaller states, such as Equatorial Guinea, in such an assessment. This dissertation will thus develop a resource density variable, largely inspired by the works of others (e.g., Le Billon 2001) where the value of the resource is divided by the total area, in terms of square kilometers, of a state.[52]

In testing this hypothesis, there will be two dependent variables, based off of the Heritage Foundation's annualized dataset found in the *Qualities of Governance* (Teorell et al 2017) database. The first measure is property rights, which "scores the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. It also accounts for the possibility that private property will be expropriated. In addition, it analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts" (Teorell et al 2017:353; Heritage 2018). The second measure is the composite score of economic freedom as denoted by the Heritage Foundation, which is

[52] Sudan's area will be counted at pre-2011 levels, former Soviet Republics are accounted for after 1991, and Yemen's data will begin in 1994.

an aggregated score measuring business freedom, trade freedom, fiscal freedom, freedom from government, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption, and labor freedom. As expected, there will be some collinearity between the two dependent variables, as property rights enforcement is a factor in measuring the economic freedom score. For continuity's sake, *Hypothesis 4* is adopting information from the World Bank's World Development Indicators (WDI) dataset accounting for state GDP in terms of PPP in constant US 2010 dollars, as this work has done for the other hypotheses. In the same spirit, in testing this hypothesis, the present work is also using Ross and Mahdavy's (2015) oil production dataset and Kimberley Process diamond extraction information, as it did with *Hypothesis 2* and *3*.

These two dependent variables are useful measures for a variety of reasons. First, their data is separated by both year and state, allowing the analyst to track changes over time. Second, property rights enforcements PR_C captures one, rather idiosyncratic, element of the resource curse. As such, this measure is a link straddling both economics, and their subsequent discussions about private property evolution and the rule of law, with political science studies on the implications of the resource curse. The second dependent variable is the composite economic freedom score, labeled the Economic Freedom Index EFI_C by the Heritage Foundation. This variable not only measures property rights enforcement, but also a number of the economic freedoms listed above. The composite score adds granularity to this analysis, as it averages out many economic freedom estimates into one score. Finally, this economic freedoms index is largely based off public data collected by the Economist Intelligence Unit's *Country Commerce (2009–2012)* dataset, the US Department of Commerce's *Country Commercial Guide (2009–*

2012) index, and the US Department of State's *Country Reports on Human Rights Practices (2009–2012).*

Below are the four estimating equations to test *Hypothesis 4* seeking to determine statistically significant differences between diamond and petroleum resource curse states in this dissertation. The first two equations measure property rights enforcement and composite economic freedom scores in states that were not colonized.[53] The third and fourth formulas offer control variables for property rights and economic freedom scores for former colonies. These extra variables are $\beta_5 PR_E$ for former colonizers' property rights and $\beta_5 EFI_E$ for former colonizers' economic freedom scores for equations three and four, respectively. Further below, this work will then estimate these equations with ordinary least squares regressions. The property rights estimating equation for non-colonies reads below as the following:

$$5.3) \qquad PR_C = \beta_0 x_0 + \beta_1 \left(\frac{V_P}{D_C}\right) + \beta_2 \left(\frac{GDP_C - V_P}{D_C}\right) + \beta_3 log(A_C) + \beta_4 log(POP_C) + \varepsilon$$

where PR_C is the property rights score as determined by the Heritage Foundation and found in the *Qualities of Governance* database, and x_0 is the *y*-intercept. The beta terms β are the linear model's corresponding coefficient estimates. The first independent variable is the value of resource V_P divided by the population of a state D_C to give us the value per capita of the resource. The second independent variable is the value of a state's *c* GDP minus the value of its resource production V_P, which would account for the GDP of a

[53] This dissertation is not counting Russia as a colony of the Soviet Union, though it was clearly influenced by the superpower. The Russian economic model has largely shifted to one of a liberal market economy since the fall of the Berlin Wall. Additionally, as previously mentioned, states that gained their independence in the 19th century (e.g., Mexico, Ecuador, and Venezuela) will not be counted as colonies.

state if it did not possess petroleum or diamonds.[54] This number is divided by the population D of the state c. Similar to *Hypothesis 2* and *3*, because this analysis encompasses very different states in terms of area and population, this dissertation will take the log of these variables $log(A_C)$ and $log(POP_C)$ to guard against major outliers among large states in the dataset.[55] Finally, a normally distributed error term ε finishes off the estimating equation.

The second regression model for non-colonies is based off of the composite score of the economic freedom index EFI_C. Formally, we would write this as the following:

$$EFI_C = \beta_0 x_0 + \beta_1 \left(\frac{V_P}{D_C}\right) + \beta_2 \left(\frac{GDP_C - V_P}{D_C}\right) + \beta_3 log(A_C) + \beta_4 log(POP_C) + \varepsilon \quad (5.4)$$

The dependent variable EFI_C is the composite economic freedom score of a state. *EFI* scores are partially composed of the property rights score, but are also comprised of scores measuring judicial effectiveness, government integrity, tax burden, government spending, business health, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. The same independent variables are accounted for as in the previous regression model.

Because colonial powers held great influence over the initial conception of property rights in their colonies, they must be accounted for in the following regressions. In order to reflect the colonial past of former colonies, estimating equations 1 and 2 will remain largely the same, but another control variable will be added. For property rights

[54] Technically, accounting for the total value of production V_P and GDP_C in this estimating equations would both work as control variables, albeit while adding collinearity between them in a manner that would have made it more difficult to identify true effects in either.

[55] Area is included in this analysis because property rights may be more contentious in smaller states where parties are more eager to delineate their territories.

enforcement and composite economic freedom scores, this work will account for the colonizing state's scores as a control variable. To be sure, this extra control does not capture the totality of how colonial powers influenced property rights in their colonies. Nor do the current property rights and composite economic freedom scores of Great Britain, France, Portugal, Spain, and Belgium reflect the institutional makeup of their former colonies. Below are the estimating equations for the former colonies in this analysis.

$$5.5)\quad PR_C = \beta_0 y_0 + \beta_1\left(\frac{V_P}{D_C}\right) + \beta_2\left(\frac{GDP_C - V_P}{D_C}\right) + \beta_3 log(A_C) + \beta_4 log(POP_C) + \beta_5 PR_E + \varepsilon$$

$$5.6)\quad EFI_C = \beta_0 y_0 + \beta_1\left(\frac{V_P}{D_C}\right) + \beta_2\left(\frac{GDP_C - V_P}{D_C}\right) + \beta_3 log(A_C) + \beta_4 log(POP_C) + \beta_5 EFI_E + \varepsilon$$

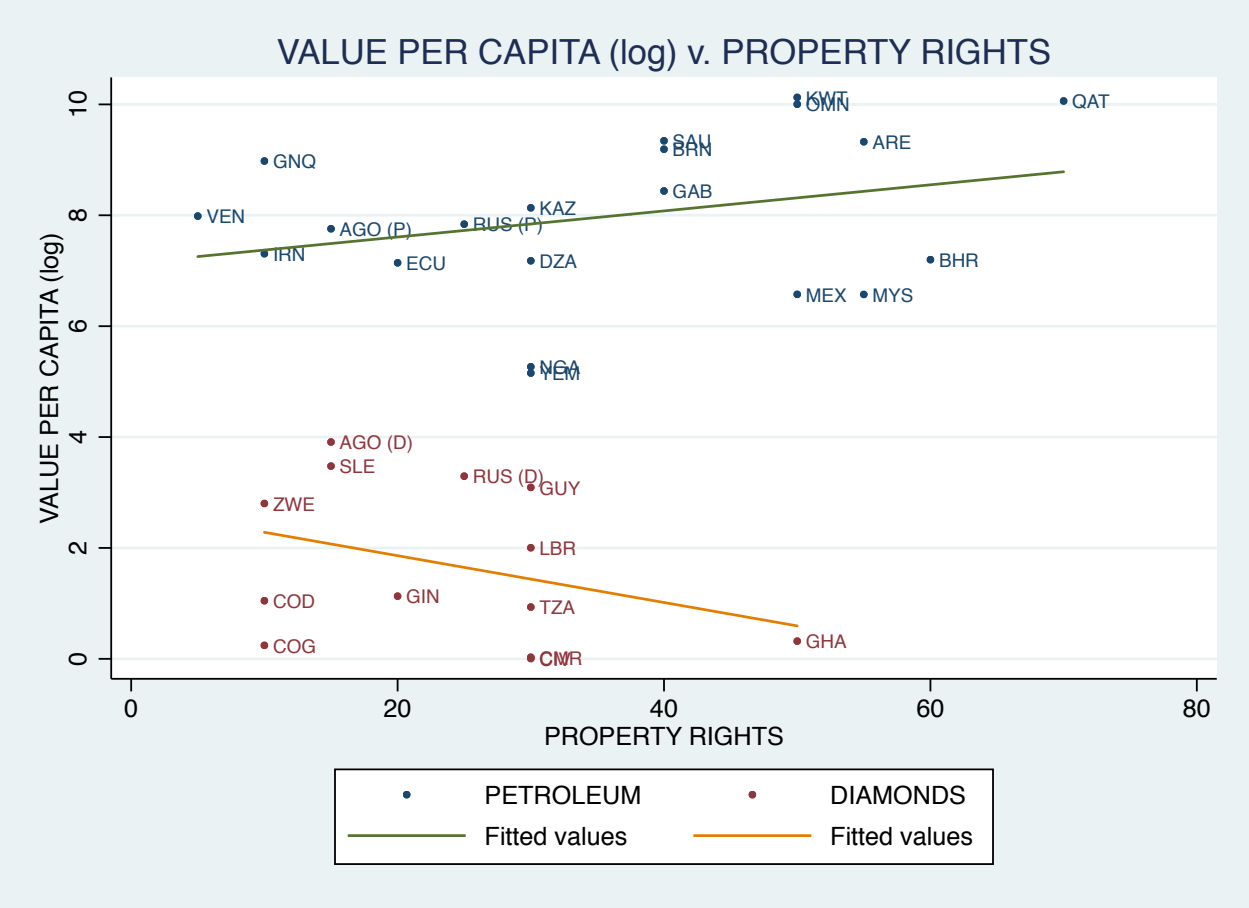
where the independent variables remain identical except for PR_E and EFI_E, which account for the former colonizing powers in Europe. This extra variable is added, cognizant that the *current* property rights score of a *former* colonizer is not an adequate representation of the effects of a colonizer upon the colonized. That said, since property rights enforcement scores are unavailable throughout colonial times, this score is incorporated to measure, however minute, the effect of the colonizing state on resource curse states. Most states in this dataset were one-time colonies. However, as previously mentioned, many gained their independence in the 19th century and early 20th century, indicating that while they were influential, this influence is diminished when measuring current property rights enforcement in their former colonies. Because of this, the former colonial powers' property rights enforcement scores will only be accounted for those states that gained their independence after WWII. A full description of how the states were categorized is available in *Appendix 3*.

Analysis

Before conducting regression analyses as defined in equations 1 and 2 determining if resources play a role in shaping private property enforcement, this dissertation will visually assess the current state of property rights in both diamond and petroleum resource curse states. Naturally, due to the sheer difference in value between diamond and petroleum resource curse states, this work incorporated the log function of the value per capita to observe more clearly if there is any correlation between diamond and petroleum states along the lines of property rights and the composite score given to these states by the Heritage Foundation. Below is the first scatterplot for the year 2014, which is the most recent year with complete data.[56]

[56] Oil production values by state are still incomplete for 2015 onward, possibly because of the severe drop in prices due to US-led fracking and the subsequent oil glut.

Figure 21: Bivariate Scatterplot of Natural Resource Value Per Capita (log) v. Property Rights



From the scatterplot above, we observe some clustering of diamond and petroleum states regarding property rights enforcement. It is also clear that many states are coded as having similar property rights values.[57] Importantly, this scatterplot indicates that the more petroleum states have, the stronger their property rights enforcement becomes while the opposite is the case with diamond states as evidenced by the downward slope of the regression line. To be sure, the above scatterplot only shows correlation among the states in 2014; there is no causality implied here. The question

[57] For example, Cameroon (CMR), Ivory Coast (CIV), Tanzania (TZA), Liberia (LBR), Guyana (GUY), Nigeria (NGA), Yemen (YEM), Algeria (DZA), and Kazakhstan (KAZ) all have a property rights score of 30.

remains: do resources influence property rights, or are these states correlated this way because of exogenous factors? Additionally, simply because states' resource values were correlated with property rights scores in 2014 does not mean that these states would always be so clustered. In the next scatterplot, this dissertation is incorporating the composite economic freedom score assigned to each state to ensure more variation among the states in the analysis.

Figure 22: Bivariate Scatterplot of Natural Resource Value Per Capita (log) v. Composite Property Rights Score

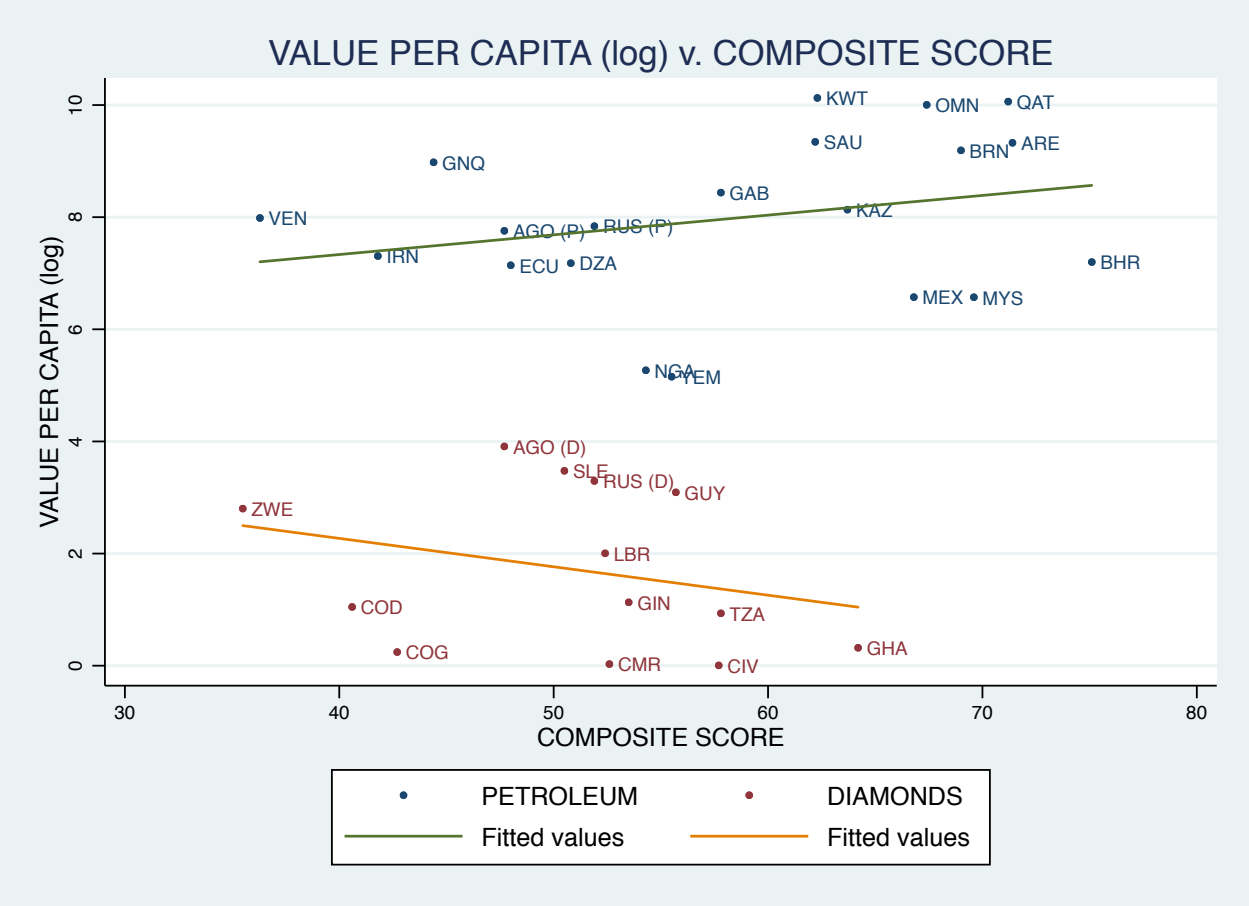


Figure 22 depicts a familiar pattern among the states in this analysis. The two regression lines in both figures again show interesting results: there is a positive correlation between property rights and per capita petroleum production, while there is a

negative correlation between property rights and (reported) per capita diamond production. It should also be noted that the slopes in these regression lines are not too steep because the per capita logging helped lower the leverage of outlier cases. Why is it that states with more diamond production seem to have worse property rights and composite economic freedom scores than states with fewer diamonds? By the same token, why do states with more petro-production possess better property rights and composite economic freedom scores while the opposite is true for diamond states?

In order to better account for temporal variation in this sample, we will now incorporate all of the years of the analysis (1980-2016), conducting two separate difference of means tests for the property rights and composite economic freedom dependent variables while treating a binary indicator of whether (=1) or not (=0) a country was an oil resource dependent state as the independent variable. The null hypothesis is that there will be no difference between diamond and petroleum states regarding property rights (H_0: $\mu = 0$), whereas the alternative hypothesis expects a difference in the means to be statistically significant at a 95% confidence level (H_1: $\mu \neq 0$, $\alpha = 0.05$). The results are below.

Table 9: T-test – Property Rights by Resource

```
ttest hf_rights, by (dpcode) level(95)

Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |     135    24.03704    1.118338    12.99392    21.82516    26.24892
       1 |     409    39.42543    .9635849     19.4873    37.53122    41.31964
---------+--------------------------------------------------------------------
combined |     544    35.60662    .8261249    19.26838    33.98383    37.22941
---------+--------------------------------------------------------------------
    diff |           -15.38839    1.796593               -18.91753   -11.85925
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -8.5653
Ho: diff = 0                                     degrees of freedom =      542

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 1.0000
```

The *t*-test in *Table 9* evaluates the difference in property rights scores across diamond- and petroleum-dependent states. It indicates that oil-producing states have a substantially higher mean level of property rights than diamond producing states (a difference of 15.39). Furthermore, the *t*-value associated with this difference in means indicates that we ought to reject the null hypothesis, considering the difference in the means between petroleum and diamond states to be statistically significant with a *t*-value of 8.565 at $p < 0.01$. This implies that the difference in property rights among diamond- and petroleum-producing states is statistically significant, with oil producing states having statistically higher property rights than their diamond counterparts.

Below, we will see that the same holds true for the following *t*-test analyzing the difference between the composite score and resource. As before, the null hypothesis (H_0: $\mu = 0$) is that there will not be a statistically significant difference in economic freedom scores between diamond- and petroleum-producing states. Conversely, the alternative hypothesis (H_1: $\mu \neq 0$, $\alpha = 0.05$) would expect a statistically significant difference between both parties at a 95% confidence level.

Table 10: T-test – Economic Freedom Score by Resource

```
ttest hf_efiscore, by (dpcode) level(95)

Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |     135    49.42889    .7159124     8.31815    48.01294    50.84484
       1 |     409    55.06846    .6112648    12.36206    53.86684    56.27008
---------+--------------------------------------------------------------------
combined |     544    53.66893    .5033828     11.7408    52.68012    54.65775
---------+--------------------------------------------------------------------
    diff |           -5.639571    1.141027               -7.880948   -3.398193
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -4.9425
Ho: diff = 0                                     degrees of freedom =      542

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 1.0000
```

The *t*-tests indicate a statistically significant difference in means between diamond and petroleum states (*t*-value 4.94; $p < 0.01$), implying that petroleum states

have stronger property rights enforcement than diamond states. While diamond states possess a mean μ_d of 49.429, petroleum states enjoy a stronger *EFI* mean μ_p at 55.068, with a difference of the means of -5.639.

However, these *t*-tests do not bestow causality, as the means may be different for a variety of reasons, such as the potential that the associations accounted for are arising due to omitted variables. To better account for this eventuality, this work will run multivariate regressions while including a set of plausible omitted variables as controls using the complete dataset (1980 – 2014). Meanwhile, this dissertation will hold constant the effects of area, population, former colonial power scores, and GDP minus value of production per capita [$(GDP_C - V_P) / D_C$] rates. In the case of Oman, petroleum production exceeds GDP, largely due to Omani foreign debt reaching nearly 30% of total GDP (IMF 2018), thereby lowering their GDP values. However, this sultanate will still be included for descriptive purposes. Below is the table for the regression analyses adopting property rights as the dependent variable and disaggregating the dataset into petroleum and diamond states.

Table 11: Cross Section Analysis: Property Rights and Economic Freedom Scores

	(1) PETROLEUM Property Rights	(2) DIAMONDS Property Rights	(3) PETROLEUM Economic Freedom	(4) DIAMONDS Economic Freedom
Value per Capita	-0.000435***	-0.138*	-0.000158**	-0.155***
	(0.000130)	(0.0824)	(7.53e-05)	(0.0532)
GDP without Resource	0.000614***	0.00666***	0.000253***	0.00400***
	(8.21e-05)	(0.00165)	(4.75e-05)	(0.00106)
Population (log)	-3.598***	3.669**	0.551	3.330***
	(1.199)	(1.753)	(0.694)	(1.132)
Area (log)	1.411	-3.760*	-2.219***	-4.449***
	(0.859)	(2.104)	(0.497)	(1.359)
Colonial Power Score	0.945***	0.635***	0.313***	0.0989
	(0.161)	(0.186)	(0.0930)	(0.120)
Constant	2.570	-48.86	47.95***	39.99**
	(11.72)	(30.91)	(6.781)	(19.97)
Observations	192	114	192	114
R-squared	0.570	0.184	0.607	0.174

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In the table above, we see strong negative correlation between property rights enforcement and the per capita production of oil ($p < 0.01$), but not as strong a negative correlation for diamonds ($p < 0.10$). These results run contrary to *Hypothesis 4* and the bivariate plots measuring per capita values of resources with property rights. However, and this is largely a conjecture, these results lend credence to the existence of a resource curse, at least regarding how increases in diamond and petroleum production may be correlated with decreases in property rights enforcements. These results also illustrate that while oil production may negatively influence property rights enforcement, other variables, namely GDP minus production value per capita, have stronger influences over property rights enforcement. Among diamond-rich states, the strongest positive correlation came from the GDP minus production value per capita, again indicating that other factors influence property rights enforcement. A hint may lay among former colonies, with both diamond and petroleum states showing strong correlation with

property rights enforcement with those of their former colonizers (petroleum: *t*-value 5.88; $p < 0.01$ and diamonds: *t*-value 3.41; $p < 0.01$).

When looking at economic freedom scores, unlike the property rights analysis, there is neither a not a strong correlation among petroleum production and composite economic freedom scores, nor a strong correlation between economic freedom scores and those of their former colonialists. Regarding diamond states, we find statistically significant negative correlation between economic freedom scores and per capita values of diamonds (*t*-value -3.03; $p < 0.01$), lending some credence to *Hypothesis 4*. There is no statistically significant correlation between diamond states' economic freedom scores and those of their former colonial empires.

While the regressions do not show any causality singling out resource extraction as a causal factor in property rights, the *t*-tests indicate strong differences in the means of property rights between diamond- and petroleum-dependent states. Furthermore, when examining the bivariate plots of property rights enforcement and economic freedom composite scores in 2014, we find considerable clustering between diamond and petroleum states. More to the point is that an increase in petroleum production equated to an increase of property rights enforcement and economic freedom composite scores, while an *increase* in diamond production led to a *decrease* among these results for diamond states. We also find statistically significant correlations between GDP minus production value, population, and former colonial powers. To some extent, this makes theoretical sense, as wealthier and more populated states would seek stricter property rights enforcements to protect and encourage private investments. Do we find a similar correlation between property rights and diamond production—yes, but not as strong (p <

0.10). There are no statistically significant results at an alpha level of 0.05 differentiating diamond states *vis-à-vis* property rights.

Petroleum states do in fact possess stronger property rights than diamond states, as is evidenced by the scatterplots. However, the results from the regressions are inconclusive and do not suggest that petroleum states enjoy stronger property rights *because* of their resource. Clearly, given the scatterplots and *t*-tests, possessing more petroleum correlates with enjoying stronger property rights while having more diamonds corresponds with fewer property rights, but we cannot say that petroleum causes stronger property rights or that diamonds cause weaker property rights. This incongruence between the anecdotal and qualitative data on one hand, and the quantitative data on the other, leads this dissertation to conclude that results collected for *Hypothesis 4* remain inconclusive.

Chapter Conclusions

Hypothesis 3 measured nationalization coefficients among diamond and petroleum states, finding that petro-states nationalized their industries more often (in every resource curse state in this analysis), possessed more powerful nationalized industries, and, judging from the slope on the regression lines in the scatterplots, were more tempted to nationalize their industries if they possessed greater resources. Diamond states, on the other hand, were less likely to nationalize their industries, and if they did, they often partnered with foreign companies, as in the Democratic Republic of the Congo, or nationalized the entire mining industry, as in Tanzania. Meanwhile, NOCs were often used as petro-arms of resource curse states, sometimes acting in unison with

other states via OPEC. *Hypothesis 4* measures property rights enforcement in diamond- and petroleum-rich states, finding that petroleum-rich states are more likely to enforce stricter property rights. Nonetheless, the evidence is inconclusive as to whether these property rights are more enforced *because* of petroleum, as there was a statistically significant correlation with many other independent variables.

This dissertation will now turn to the violent resource curse, testing *Hypotheses 5* and *6* to determine how differences between diamond and petroleum states may lead them to suffer from different violent curses.

Chapter 6

THE VIOLENT RESOURCE CURSE

Two hypotheses will be tested to determine if diamond- and petroleum-rich resource curse states suffer from different violent resource curses. As elucidated in the theory chapter, resources potentially influence policymaking differently in diamond and petroleum states. This chapter is dedicated to understanding the subtle differences in how these resources shape violent conflict. The first hypothesis tested in this chapter, *Hypothesis 5*, seeks to demonstrate processes leading to rebel funding and activity, especially against sitting governments. In this sense, *Hypothesis 5* is evaluating the contention that diamonds and petroleum create different pathways for rebel activity. Meanwhile, *Hypothesis 6* displays the results of these pathways, decoupling differences between civil and international conflict and predicting this discrepancy among diamond- and petroleum-rich resource curse states. While many resource curse scholars focus on how states may experience violence, this dissertation seeks to tease out differences between diamond- and petroleum-rich states on the types of violence they face. If analysts are better equipped to pinpoint these differences in violence, then perhaps policymakers would be better positioned to avoid certain practices leading to such conflict.

Testing Hypothesis 5

Rebels seeking to overthrow the government are more likely to leverage diamond mines than oil fields.

Inspired by the scholarship of Timothy Mitchell (2013), this hypothesis focuses on how the intrinsic and material properties of diamonds and petroleum lead actors to pursue different activities in relation to their resources. As referenced in the literature review in *Chapter 2*, Mitchell's (2013) analysis describes how coal led to democratizing results in nineteenth century Britain. Due to coal's extreme concentration—as opposed to previous energy sources, such as timber in Germany or wind in the Netherlands—coal miners possessed vast powers in their hands. Through the concentration of coal, combined with the brotherhood created in mines, coal workers were empowered to strike and stop the flow of energy to large cities in Britain. These strikes led miners to possess unusual amounts of power, destabilizing aristocratic power realms, eventually leading to a democratizing effect in Britain. While *Hypothesis 5* is not geared to determine democratization efforts, it follows in the stead of Mitchell's (2013) work, understanding that intrinsic values of resources persuade agents to act differently. While economic factors, such as rents generated from petroleum, will not be ignored, this chapter will show how material considerations influence rebel behavior in times of conflict.

Hypothesis 5 could be tested quantitatively or qualitatively; however, due to the dearth of quantitative data on differences in violent conflict, this dissertation will conduct a qualitative study analyzing agential motives in resource exploitation during violent conflicts. *Appendix 4* provides a complete description detailing why quantitative methods were not implemented to test this hypothesis. To determine *why* rebels act the way they

do, we must conduct a qualitative analysis. Quantitative methods do not provide insight into the behaviors of actors within conflicts. There is plenty of qualitative evidence depicting how agents use resources to fund rebellions, disrupt government revenue streams, and influence exports. As often acknowledged, the world economy is reliant on petroleum, and any major disruption to the flow of oil would make headlines, not only domestically, but in Wall Street, the London Stock Exchange, and perhaps merit an official international response. Regarding diamonds, thanks to the Kimberley Process, along with multiple other non-governmental organizations, a wealth of information regarding violent conflict and diamond production is now publicly available.

Rebels may use a variety of strategies to overthrow governments. During the Arab Spring,[58] for example, many oil-rich and oil-poor Arab states experienced pro-democracy movements and rebellions. Oil-poor states, such as Tunisia, Egypt, and Morocco saw their governments concede to pro-democratic pressures relatively quickly. Meanwhile, oil-rich states managed to either hold on to their power or fight rebels. While oil-rich Libya and Syria are fighting protracted civil wars against rebels, others in the Gulf tapped into their petro-wealth to appease dissidents. The Saudi monarchy, as previously mentioned, was left untouched by Arab Spring protests by providing massive payouts for public work projects and better salaries for government employees (Gause 2011:6). The Arab Spring provides a tailored case study for differences between oil-rich and oil-poor states. However, as this dissertation seeks to find differences between diamond- and petroleum-rich states, the Arab Spring offers little help.

[58] We should note that while protestors are not calling for Pan-Arabism, the constructivist argument is that the demonstrations spread across the Middle East so quickly and efficiently is because many citizens consider themselves part of a larger Arab nation.

Conflicts abound in other resource curse states. Mineral-rich Democratic Republic of the Congo had to contend with the spillover from the Rwandan genocide in the 1990s. Yet, many conflicts were largely socio-economic and cultural, rather than resource driven. Russia has dealt with two separatist wars in Chechnya, neither related to resources. Ecuador and Peru had border scrimmages unrelated to petroleum or diamonds. The Iran-Iraq War was driven by conflicts dating back to antiquity, but the reality is that Saddam Hussein first invaded Iran's oil-rich Khuzestan province in 1980. Nonetheless, two oil-rich states fighting each other, painful though it may be, does not provide for an adequate case study for *Hypothesis 5*.

Venezuela also suffered through an attempted coup in the early 1990s. Hugo Chávez's Revolutionary Bolivarian Movement-200 attempted to overthrow the government in 1992, accounting for around 300 casualties. Instead of occupying oil fields, they sought to overtake key military and communications installations. The coup eventually failed and Chávez was sent to jail. However, he was later released, founded his own political party, won the 1998 election, and held on to power almost until his death in 2013.

Oil smuggling also exists, especially in Nigeria, where valuable resources, weak governance, and cheap labor abound. These oil smugglers are a combination of government officials, Niger Delta militants, and locals wishing to make money. By 'hot tapping' or 'pressure tapping' pipelines, they manage to diverge the flow of small percentages of petroleum to other reservoirs and sell them in the black market for profit. Because the percentage of diverted petroleum is miniscule in comparison to the pipeline installed by the MNC, this smuggled petroleum tends to go undetected, as pipeline

pressures remain almost identical given the comparably small amounts of siphoned off petroleum (Ikelegbe 2005:221). This siphoning of petroleum has grown in intensity and scale since the mid-1980s. Buyers of illegally obtained petroleum are oftentimes Nigerian, but may also be from neighboring countries, seeking to purchase petroleum at a discount. According to Oduniyi (2003), when the price of a barrel of crude oil was $26 USD, the smuggled petroleum was sold for around $7 USD per barrel.

Another interesting anomaly is ISIS, which also tends to fund itself by smuggling petroleum. ISIS controlled territory is known to be oil-rich, and while ISIS does not specifically target oil fields in its fighting (as Saddam Hussein did during the invasion of Kuwait), ISIS does extract, refine, and smuggle petroleum. This smuggled petroleum, originating in Iraq and Syria, is often sold in Turkey, whose high gas prices have incentivized unscrupulous parties to buy smuggled petroleum, even if it's from their enemy (Bronstein & Griffin 2014). Differently from Niger Delta rebels, ISIS operates as a massive organized crime group that has become so powerful to more or less be considered a state. But oil is not the only revenue source for ISIS—they tax their people and force them to make 'voluntary' contributions to ISIS (Bronstein & Griffin 2014). The Nigerian smugglers and ISIS illustrate how petroleum may be used as a tool to finance rebel groups and even help create a pseudo-state almost *ex nihilo*.

The Nigerian and ISIS cases indicate that petroleum can be smuggled and become profitable enough to sustain rebel groups in the Niger Delta and a militaristic pseudo-state such as ISIS. Rebels tapping into Nigerian pipelines have sparked increases in armed conflict in the region, but the country never experienced a civil war. ISIS indirectly has contributed to a civil war in Syria, but because this case is simply too much

of an anomaly, there is no mere comparison among diamond-rich states. The Venezuelan case may provide for some variation in this analysis, but the coup was not necessarily a civil war that embroiled the entire country. With this background information, this chapter will qualitatively analyze the role resources play in three civil wars in Africa. First, we will observe the relatively minor role petroleum played in the Algerian Civil War. Then this work will compare the roles diamonds *and* petroleum played in the Angolan Civil War along with its corollary in the Cabinda War. These two qualitative case studies will be pitted against the role diamonds played in the Sierra Leonean Civil War. These three states are not just resource-rich. They all experienced bloody civil wars—none of which were separatist movements, and all were designed to overthrow the existing government throughout more or less the same time period. Furthermore, the following conflicts were all grievance-based and triggered for reasons exogenous to resources, yet they all came to involve either petroleum or diamonds for sabotage or funding purposes.

First, oil-rich Algeria suffered through a bloody civil war (1991-2002) taking the lives of around 200,000 people during the conflict. The Algerian Civil War was an armed conflict between the government and various Islamist groups. Second, Angola has the most diamonds and oil per capita than any other state in this analysis. They also experienced a protracted civil war from 1975 to 2002 with over 500,000 civilians left dead, and garnering a lot of international attention, especially surrounding Angola's resources. Third, diamond-rich Sierra Leone endured a bloody eleven-year civil war from 1991 to 2002, with the Revolutionary United Front (RUF) financing their activities through blood diamonds, and the former Liberian president, Charles Taylor, intervening

in the conflict. Civilian casualties are unclear, but they range from 50,000 to 300,000 deaths, not including the horrors that come with war, such as refugees, internally displaced people, mass rape, and child soldiers, that are not accounted for in casualties. During the same time period, Africa suffered through three civil wars in resource-rich states. Each state in this analysis possesses a different resource and a different former colonial master. Algeria is oil-rich and a former French colony; Angola is bestowed with both oil and diamonds and is a former Portuguese colony; and Sierra Leone is diamond-rich and former British colony.

Hypothesis 5 is quite similar to Ross's second hypothesis, as defined in the literature review, stating that non-lootable resources are more likely to lead to separatist conflicts while lootable resources are more likely to benefit rebels. In a separate hypothesis, Ross also postulates that non-lootable resources are more likely to benefit the government (Ross 2004:12-13). While Ross's hypothesis holds true for Angola and Sierra Leone, it did not hold true for the Algerian Civil War (as this work will later show), as their non-lootable petroleum was in a remote location in the Sahara, yet they did not experience a separatist movement. Rather, *Hypothesis 5* partially agrees with Snyder and Bhavnani's definitions of lootability (2005:565), considering the resource themselves, including the economic barriers to entry as defined by their lootability, to be central in determining whether or not rebels seek to capture the resource. However, it would expand this definition to the post-capture period of the resource, not simply the economic barriers that Snyder and Bhavnani describe (2005:568). It's not enough to take over an oil field and refine the petroleum; rebels would have to develop an extensive network of consistent and reliable clients for their product. They would also have to

conduct regular assays, market their petroleum as different from other varieties, tailor their refineries to produce different petroleum-based products, transport the resource, and spread these activities throughout thousands of miles to turn a profit (e.g. ISIS manages to do this and sell illicit petroleum to Turkey). These are characteristics unique to petroleum, and no other non-lootable resource, such as copper or gold. These characteristics are also not *economic* barriers, as defined by Snyder and Bhavnani (2005:568), but rather material barriers unique to petroleum. Kimberlite diamonds, such as those found in Angola, are not only non-lootable, according to Snyder and Bhavnani (2005:568), but also highly concentrated in one location. Kimberlite diamonds also have their own non-economic barriers to entry: smuggling diamonds out of a country requires bribery, illicit trade routes, customers, and countless middlemen before blood diamonds are mixed with legally extracted diamonds.

In the subsequent analysis, this dissertation will show how different resources have incentivized rebels and gangs to act differently during each civil war. As will be shown in the conclusion of this section, diamond states are more likely to suffer from rebel activity taking over mines, using diamond revenues to fund their conflict, and develop an organization to secure those mines, which often includes child soldiers. Petroleum states, on the other hand, do not suffer from these plagues, but rebels do seem more likely to sabotage government efforts in exporting petroleum. Angola, which suffered from two separate, but interrelated wars, found itself subjugated to both characteristics of conflict.

First, we will begin with the Algerian Civil War, borrowing from the scholarship of Miriam Shabafrouz's (2010), among others, excellent analyses of the role petroleum played during the conflict.

The Algerian Civil War

There are still numerous questions regarding the factors leading to the Algerian Civil War (1991-2002) that claimed the lives of thousands, some of them pointing to the influence of petroleum in the onset of the war. Algeria has experienced numerous violent outbreaks since its independence from France, which, unlike many other former-French colonies, was a bloody affair. Since Algeria's independence, the African state has been riddled with social, economic, and political unrest. A population explosion during post-independence times combined with a sharp fall in oil prices once non-OPEC oil began to flood the market. Politically, one socialist-leaning party, the *Front de Libération Nacionale,* the National Liberation Front (FLN), ruled the state since its independence in 1962. However, with the rising population and stagnant economy, dissatisfaction with the FLN in Algiers began to grow until, in 1988, a series of street-level protests and riots rocked the capital. Not to be left out, the Islamists soon joined the riots and marched with Algerian youth, leaving hundreds dead (Shabafrouz 2010:10).

These street-level riots, beginning in Algiers and extending to other regions of the state, brought out a new constitution that allowed for political parties other than the FLN to participate in government, the most successful of which was the Sunni Islamist *Front Islamique du Salut*, the Islamic Salvation Front (FIS). By appealing to both religious businessmen and the increasingly angry and unemployed youth, the FIS grew in numbers

and power for several years. Then in May 1991, the FIS called for a general strike to change electoral laws that they saw as favoring the ruling FLN party. While this civil disobedience was largely peaceful, according to the International Crisis Group, at least 20 people were killed when army commanders intervened (ICG 2004:7). Later on that year, the FIS won 47% of the first round of parliamentary elections, and just before the second round, on January 11, 1992, President Chadli Benjedid resigned under military pressure (Shabafrouz 2010:10). This led to a rapid escalation in conflict and a civil war that would last until 2002.

Initially, violent Islamists only targeted governmental forces and military targets, but they eventually attacked intellectuals, journalists, and political union activists (Zerrouky 2002:92). They also formed a quasi-group, known as the *Grupe Islamique Armé*, the Armed Islamic Group (GIA), who believed the FIS to be too moderate and conciliatory. The GIA turned into an urban fighting force, killing many foreigners, including international oil personnel (Fearon & Laiton 2006:21). Over time, especially given the GIA's tactics of planting bombs, more civilians began to be killed. The government, for its part, also killed armed Islamists, along with their sympathizers (Shabafrouz 2010:11). Then in June 1992, one of the founders of the FLN, Mohamed Boudiaf, was assassinated by one of his bodyguards, who turned out to be an FIS sympathizer, on live television, which further escalated the violence (Stora 1995:329). Even though, with some effort, the GIA had the capabilities of attacking oil installations, they mostly targeted journalists and intellectuals, especially those writing in French, the former colonial language. The GIA housed enormous animosity against these groups, who were viewed as supporting a secular regime in Algeria (Vriens 2009). Precisely

because journalists, and not petroleum, posed the greatest threat to the GIA's ideology, they intentionally targeted them, even publicly announcing that "those who fight by the pen shall die by the sword" (St. John 1996).

The Algerian Civil War then took on an international component when foreigners began disappearing and GIA Islamists hijacked Air France Flight 8969 at the Houari Boumedienne Airport in Algiers on Christmas Eve. Contributing to the violence were the midnight raids on small towns leaving between 50 and 400 civilians dead (Shabafrouz 2010:11; Cordesman 2002:120). According to Shabafrouz, sometimes oil and gas infrastructure would be damaged as a result of the war. In an attempt to disrupt governmental control over petroleum, Algeria's chief export, the GIA bombed the Trans-Mediterranean (Trans-Med) pipeline in 1997. This pipeline transcends half of Africa. Commencing in Nigeria, the pipeline travels north, through Niger and Algeria, and then underwater to Spain and Italy. When terrorists bombed the pipeline, they managed to stop oil exports to Italy for five days, but ENI had enough surplus petroleum for this bombing to not affect Italian consumers (Hayes 2004:37).

As is often the case when the government fights civilians, the total death toll in the Algerian Civil war remains in question. Figures range from 44,000 to 200,000 casualties. Many civilians are still missing—6,000 according to Werenfels (2005:9) and also noted in Shabafrouz (2010:11). However, something interesting happened during the civil war. Except for the Islamist bombing of the Trans-Med pipeline and the sporadic disappearance of some oil workers, oil played a very small role during the conflict. Scholars, such as Clement Henry, are more likely to point to Algeria's colonial past rather than petroleum. According to Henry, "the original sin, then, was not the 1956

discovery of oil, but the 1830–31 French invasion of Algeria and subsequent destruction of the Ottoman governing infrastructure" (Henry 2004:76). Oil may have played a role, but it was an indirect one. Rebels made no bona fide effort to capturing oil fields, selling petroleum, or stealing it from pipelines. Instead, they chose to sabotage an existing pipeline and kill some oil workers while not seeking to use the petroleum in any meaningful way.

As *Hypothesis 5* expects, the economic and material barriers to entry for petroleum deterred rebels from tapping into this resource, despite the fact that petroleum accounted for a significant portion of Algeria's GDP and the government was likely using these revenues to fight rebel activity. As observed from *Hypothesis 2*, the oil per capita income of Algeria ranged from $273 to $615 per year. These relatively low dollar values are attributed to Algeria's high population rather than low oil production. Furthermore, Algeria's petroleum, the Algerian Saharan Blend, is quite 'sweet' in sulfur content and has a low API gravity, especially in comparison to OPEC's more 'sour' basket. Perhaps because the Saharan Blend is so valuable, Algeria is highly dependent upon this resource, with petroleum accounting for 94% of Algerian exports (OEC 2018a).

The 1979 oil crisis saw the price of petroleum double from $20 to almost $40 in one year. However, many states, Algeria included, failed to prepare for the subsequent drop in oil prices, which hit its economic sector just as it saw an explosion in population. According to Cordon and Neary (1982), Algeria began to wrongfully invest more in its petro-sector, thereby disregarding less profitable enterprises, such as manufacturing and industry. This Dutch Disease further contributed to the blow that came with plummeting oil prices. Furthermore, while economic benefits from the oil trade were meant to spur

local economic development in Algeria, the drop in oil prices in the early 1980s exposed the inefficiencies of this program and highlighted Algerian dependence upon the resource (Aïssaoui 2001:231; Shabafrouz 2010:15). Algeria was (and remains) highly dependent upon petroleum, but how did the physical and intrinsic qualities of this resource influence rebel behavior during the Algerian Civil War?

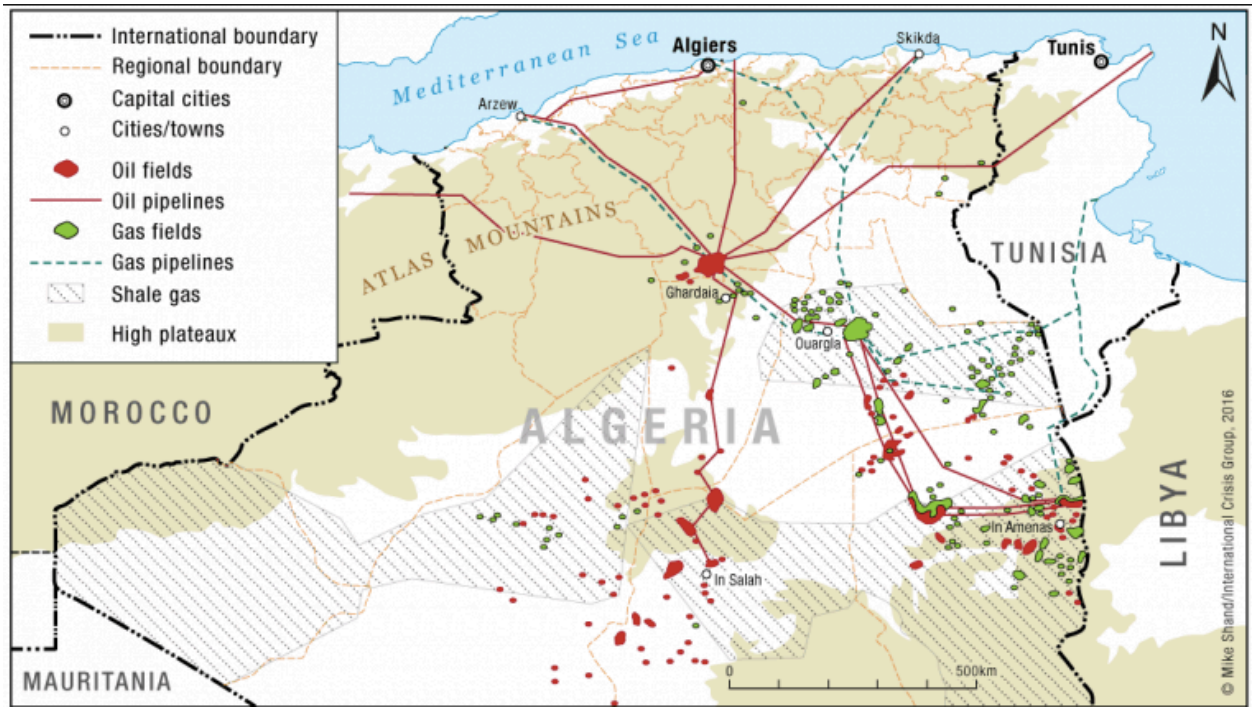
As previously noted, petroleum is difficult to discover, requires expensive machinery to extract, and must be processed in costly refineries before it can be sold for as a finished product. Furthermore, unlike alluvial diamonds that are sometimes found at the surface, most world petroleum found at the surface has already been extracted and consumed. Humans tend to retrieve the easiest and best of a resource *first*, and then proceed to drill in more remote places, such as offshore. These powerful barriers to entry, so to speak, not only dis-incentivize small companies from entering the oil trade they also discourage rebels from attempting to capture the resource, illustrating a fundamental difference between diamonds and petroleum. This is not to say that oil did not play a role in the Algerian Civil War. As scholars have argued (Dillman 2000; Sheikhzadegan 2003), Algerian dependence upon petroleum economically contributed to the Algerian Civil War, though this economic struggle had been brewing for a decade before the first shots were fired. When assessing the Algerian Civil War, the only direct connections between petroleum and rebels were the GIA's killing of international oil workers and one rebel attempt to disrupt the government's exports by sabotaging the Trans-Med pipeline in 1997. Even so, while this interference may have slightly hurt Algeria's economy, it was so minor that it did not disrupt Italian consumers. This sort of sabotage seems to be a

problem oil states are more likely to suffer from (e.g., Saddam Hussein burning Kuwaiti oil fields) rather than outright theft of their resources.

The reader will additionally note how the Algerian Civil War took on an international perspective. This did not happen when oil markets were threatened or overtaken by rebels—they were not—but rather when the GIA began killing oil workers and Air France flights were getting hijacked. Although it cannot be said for certain, but if Algerian oil exports had suffered during the war, perhaps we would have observed more international interference in the conflict. Precisely because petroleum—and not diamonds—is the lifeblood of the world economy, a disruption would attract more international attention, due to supply-side concerns that generally determine petroleum's price and economic elasticity.

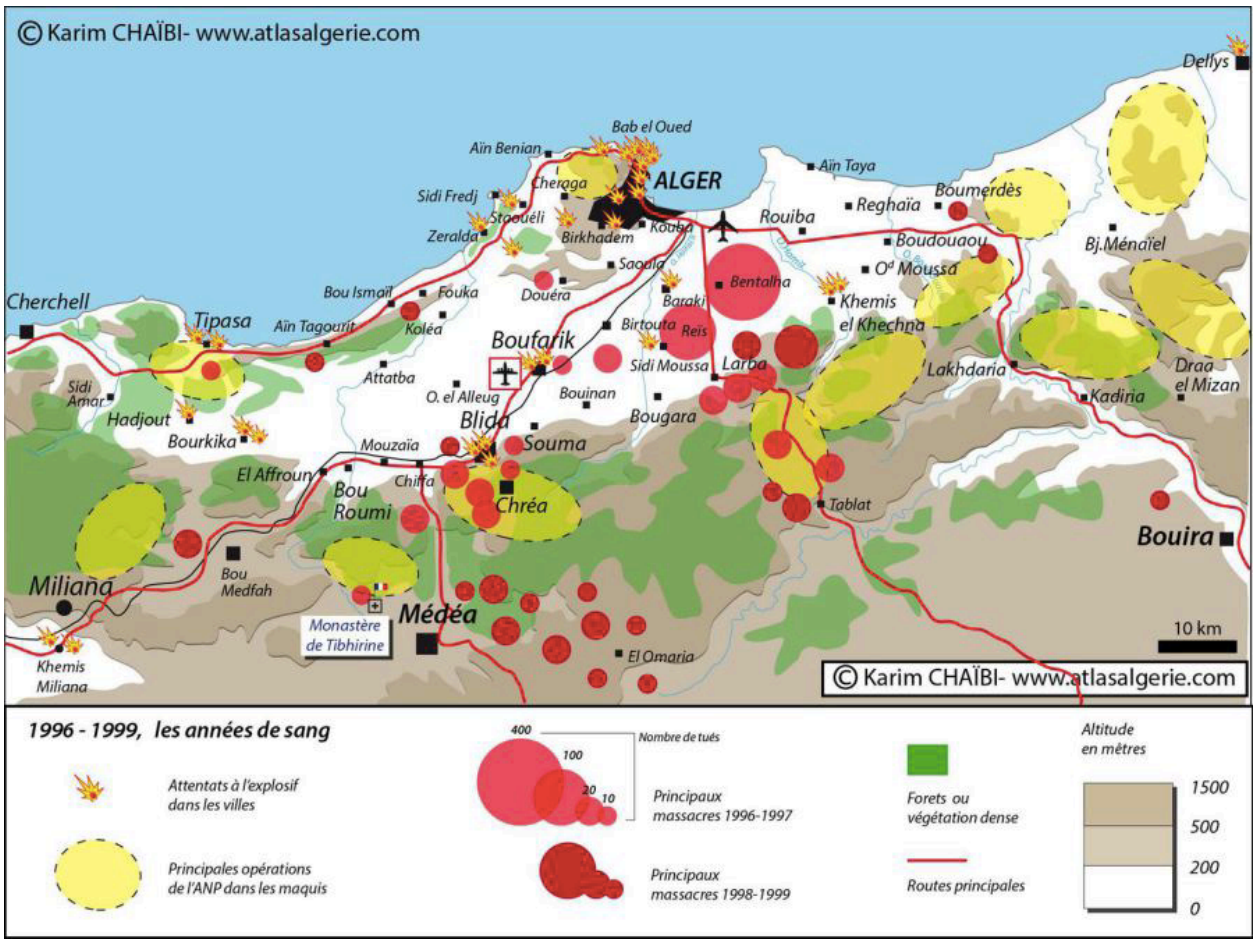
In the Algerian case study, we should also note that the petroleum was concentrated in inaccessible places. As Shabafrouz (2010:16) notes, "as the hydrocarbon resources are located in remote areas and as their extraction requires very sophisticated technical equipment, the resources can be considered 'not lootable' in the sense of Ross (2004) and thus difficult for rebels to seize [*sic*]." To further illustrate the remoteness of petroleum in the Algerian Civil War, below is a map of Algeria's oil fields and pipelines leading to the Mediterranean Sea.

Figure 23: Map of Algeria's Oil fields and Pipelines (Shand & ICG 2016)



As depicted in the map above, while pipelines flow through major cities on the Mediterranean coastline, the majority of Algeria's oil and gas fields are located in the less populated, less accessible, and less guarded, southern part of the country. For comparison's sake, below is another map depicting the major sites of raids and battles during the Algerian Civil War. The reader will note how the oil fields, concentrated in the southern part of the country was located far from the fighting, but the pipelines ran through major conflict zones.

Figure 24: Major Conflict Zones during Algerian Civil War (Chaïbi 2018)



Although this map only shows northern Algeria and is in French, we can note that the majority of the fighting took place in more developed areas and little attempts were made by rebels to leverage non-lootable and unguarded[59] Algerian oil and gas fields in the southern part of the country. This lack of lootability is precisely what differentiates petroleum from diamonds *vis-à-vis* the resource curse, and according to the *theory of resource curses*, leading to fundamentally different curses. Shabafrouz (2010:16) further

[59] Although not an official account, Boualem Sansal (2010) in Fouad Ajami's, *The Furrows of Algeria*, states that while the flow of oil was left largely untouched by the civil war, "an internal passport was needed for Algerians to gain access to the oil and gas fields. Expats and lucky Algerians lived here, behind high walls and checkpoints, guarded by the most sophisticated means of surveillance. The generals were unapologetic: this was *l'Algérie utile*, useful Algeria, sealed and off-limits to the terror."

paraphrases Cordesman (2002:149) in discussing how Algerian oil and gas infrastructure was largely unguarded, an idea incomprehensible for diamond mines. While the remoteness of the petroleum may have dis-incentivized rebels from capturing the resource, the idea that the infrastructure was left unguarded must have tempted rebel Islamists, especially since Sonatrach, Algeria's nationalized oil company had a monopoly over the industry and used its profits to fund the government's military combatting the GIA. Incentives aside, the only case we have of petroleum playing a direct role in the Algerian Civil War was that of minor sabotage and killing some oil workers.

We have observed how an oil-rich African state suffered through a civil war in the 1990s with its petroleum industry largely left intact. Let's now examine another African state, with both petroleum and diamonds that also experienced a civil war during the 1990s. The Angolan Civil War lasted longer than Algeria's, but this case should provide a good benchmark to determine differences between petroleum and diamonds in times of civil, international, and extrasystemic conflict. Notably, Angola's possession of both resources ultimately led it to experience both types of violent resource curses.

The Cabinda War & Angolan Civil War

The Angolan Civil War (1975-2002) may be (mis)understood as one conflict that ended up becoming a proxy war for the United States and the Soviet Union. A thoughtful analysis of the war, however, would disaggregate the violence into two separate conflicts, both stemming from former Portuguese colonization. The first conflict is the ongoing Cabinda War (1975—present), which is a separatist movement in the oil-rich enclave of Cabinda, where rebels are attempting to secede from Angola. Second is the central armed

conflict between the *Movimento Popular de Libertação de Angola – Partido do Trabalho*, the People's Movement for the Liberation of Angola – Labor Party (MPLA), backed by the Soviet Union, against the *União Nacional para a Independência Total de Angola*, the National Union for the Total Independence of Angola (UNITA) and the *Frente Nacional de Libertação de Angola*, the National Front for the Liberation of Angola (FNLA), both hesitantly and sporadically backed by the United States. This civil war sprung out of the Angolan war for independence from Portugal (1961-1975), itself a theatre of a broader Portuguese war against many of its former colonies, including Mozambique and Guinea-Bissau. This dissertation will first begin with a brief history of Angola and Cabinda.

At the height of Portuguese power, the small European country nestled in the Iberian Peninsula managed to colonize a large portion of South America, parts of Southern Africa, and held ports in Goa, Hong Kong, Sri Lanka, Nagasaki, and Macau. Angola and Mozambique were Portugal's two largest colonies in Africa, with Brazil being the largest in the Americas. The Portuguese colonized Angola in 1575 and kept control over this region for exactly 400 years until 1975, after the Angolans joined Mozambique and Guinea-Bissau to declare their simultaneous independence from the Portuguese crown.[60] Throughout their colonization, the Portuguese also managed to settle the nearby port of Cabinda, formerly known as Portuguese Congo. The Portuguese explorer, Diogo Cão, was the first European to land in Cabinda in 1483, paving the way

[60] Their independence was not only precipitated by a lengthy war of independence, but also a military coup in Lisbon that overthrew the Salazar-backed *Estado Novo*. Military officers opposing the fascist regime overtook the government with very little resistance. The coup is known as the Carnation Revolution, largely because it was a relatively bloodless coup and civilians celebrated by putting carnations in rifles after the takeover was announced.

for his home country to colonize the region for the next four hundred years. While Portugal was the *de facto* colonizer of Cabinda for much of the sixteenth and seventeenth centuries, it was not until 1885 in the Treaty of Simulambuco, itself a response to the Treaty of Berlin, that Cabinda was officially recognized as a Portuguese protectorate. These treaties were meant to divide Africa into European colonies to regulate trade and discourage war during the era of European imperialism. In these treaties, the Portuguese treated Cabinda and Angola as separate colonies (De Leon 1886:106). However, after independence was declared in 1975, Cabinda and Angola were both lumped into one colony—Angola. Cultural and ethnic differences aside, Cabinda and Angola are not contiguous; Cabinda is often seen as an enclave of larger Angola. Below is a map depicting the separation.

Figure 25: Map of Cabinda and Angola (Vidiani 2018).

As seen from the map above, even though Angola is the larger Portuguese colony, Cabinda, in the upper left hand corner, is ensconced as an enclave in between the Republic of the Congo and the Democratic Republic of the Congo. Cabinda was understood to be a separate Portuguese colony independent from Angola, but there have been movements for its separation even before the war for independence. The origins of the Cabindan independence movement are vague, but in 1956 the *Associação dos Indigenas do Enclave de Cabinda*, the Indigenous Association of the Enclave of Cabinda

(AlEC), formed with the stated goal of separating itself from Portuguese rule and incorporated as a Belgian colony (part of Zaire, now DRC) or a French colony (part of French Congo, now Republic of the Congo). The beginning of the Angolan independence movement in 1961 put pressure on Cabindan independence groups to become more assertive in their movements. This led to the amalgamation of many groups to form the *Frente para a Libertação do Enclave de Cabinda*, the Front for the Liberation of the Enclave of Cabinda (FLEC), later becoming FLEC-FAC as they merged to become part of an even larger group. Citing the Treaty of Simulambuco, FLEC sought direct communication with Portugal for independence, arguing that they were fundamentally distinct from the larger Portuguese colony of Angola (McCormick 1992:4). This action was supported by then-dictator of Zaire, Mobutu Sese Seko, and the Republic of the Congo, possibly eyeing an annexation of the region.

The Angolan War for Independence left between 30,000 and 50,000 civilians dead, granting Angola freedom from the Portuguese Crown and its Salazar-backed *Estado Novo* at a hefty cost. Yet, immediately after Angola received independence, the civil war commenced in conjunction with the Cabindan separatist movement. We will first examine the Cabindan separatist movement and the role petroleum played in the conflict. Then we will examine the broader Angolan Civil War and how resources were used to fund rebellious activities.

The Cabinda War (1975—Present)

Three independence movements in Angola, the FLNA, MPLA, and UNITA, signed the Alvor Agreement (1975) that effectively ended the post-Salazar Portuguese

colonization of Angola. Absent from the roundtable denoting the terms of the treaty was FLEC-FAC or any other Cabindan voice. Despite efforts to tie up the three movements into one national group, the parties failed to accomplish these aims, spurring diplomatic conflict. Then a few things happened at once: FNLA and UNITA ministers fled Luanda, the South African army invaded Angola from the south, and CIA-backed troops and mercenaries from Zaire occupied the north (Dos Santos 1983:102; Stockwell 1978). During the Alvor Agreement, the MPLA declared Angola free from 'Cabinda to Cunene,'[61] cementing Cabinda's status as an Angolan enclave rather than an independent state. However, as Dos Santos informs us, one historical problem remains: the state "apparatus the MPLA took possession of at the moment of independence, as a colonial legacy left to Angolans, is an artificial one, as it was built along the lines of European bourgeois interests whose ultimate aims were to support economic exploitation and protect metropolitan profits" (Dos Santos 1983:103).

Partially because FLEC was not invited to Alvor, they operated a guerrilla-type war, attacking troops and economic targets, and, for the purposes of this dissertation, kidnapping foreign employees working in the offshore oil industry (Gomes 2003:5). Due to these rebellions, the Angolan government was forced to keep 2,000 soldiers in Cabinda; this number increased to 15,000 as the Angolan Civil War flared up in 1993. Talks were supposed to begin in the mid-1990s when FLEC had control of most of the Cabindan countryside, but not the city. Yet, according to Gomes (2003) these talks never took place. Throughout the early 1990s, the rebels avoided direct attacks on Cabinda oil

[61] According to *Newsweek*, this slogan was actually a Cuban recommendation referring to the northernmost and southernmost provinces to envelop Cabinda as part of Angola, despite Cabinda's geographic and colonial past (Vines 2016).

platforms or on expatriate oil workers, many of whom were Americans. However, Cabindan separatists have warned that unless "Luanda made greater concessions, like encouraging economic development, self-determination and eventually independence, the oil installations could become a target" (Noble 1992). They eventually became a target a few years later.

Throughout 1997, FLEC fighters mounted fifteen attacks against Angolan military targets. Then, after a period of relative calm, FLEC "started to target foreigners, kidnapping a number of construction and oil workers, in an attempt to gain international attention for its independence fight" (Al Jazeera 2010). Yet, these kidnappings remain relatively rare.[62] While they may be high-intensity, they seem to be sporadic (Cropley 2016). In 2016, FLEC-FAC supporters travelling by speedboat managed to board an offshore natural gas platform and told Chevron workers to leave Cabinda. Eventually they managed to leave the platform without further incident (Cropley 2016). Aggressions such as these seem to be an increasingly rare occurrence in Cabinda, but this may be the calm before the storm.

While the conflict is ongoing, the Cabindan Republic currently exists only in paper. Currently, Cabinda and FLEC have an exiled government in France still seeking independence from Angola. According to the US Department of Justice Report from 2007, the conflict has left around 30,000 dead since 1975, and human rights activists have 20 pages of testimonies of alleged abuse, rape, torture, and looting. Although victims claim abuses on both sides, the overwhelming number of accusations point to government forces rather than FLEC (US Justice 2007:3-4). The conflict remains hinged

[62] Unrelated to petroleum, Cabindan gunmen shot up a bus carrying Togo's soccer team, killing the assistant coach, bus driver, and team spokesman (Cropley 2016).

on two irreconcilable positions: for the Angolan government, Cabinda is not only a province, but is one of the two provinces named in their popular designation of 'Angola from Cabinda to Cunene,' with Luanda consistently emphasizing its commitment to keeping Cabinda as part of Angola. On the other hand, Cabindan separatists consider Cabinda to have its own history, culture, and colonial past. They believe Cabinda to have been invaded by the MPLA when Angola received their independence. Their palindromic motto reflects their stance: 'We wish Peace for Angola and wish that Angola leave us in Peace' (Gomes 2003:7). Though there was a 2007 peace deal, FLEC somewhat irregularly continues to wage a guerrilla-style war against Angola (Coroado & Strydom 2016). So other than the sporadic kidnapping and threats to foreign oil workers, what role did natural resources play in the Cabinda war?

In 1962, the Cabinda Gulf Oil Company (CABGOC) discovered offshore petroleum in Cabindan waters, first extracting oil from the Malongo Oil Field in 1968 after conducting seismic activity tests (Corkin 2017:3; Koning 2014). Since Cabinda was a Portuguese colony at the time, the Portuguese government granted concession rights to Chevron to extract petroleum out of Cabinda's Block 0, and the MNC subsequently bought out much of CABGOC (Corkin 2017:3; Koning 2012). With these concessions came a large share of social investment programs by Chevron and other IOCs working in Angola that they are contractually bound to provide (HRW 2004:8). Congruent with oil extraction's capital-intensive business model, the petroleum industry in Cabinda offers few employment opportunities for locals in comparison to the revenues petroleum generates. Furthermore, neither the local government nor any MNCs made significant

attempts to develop secondary manufacturing or agricultural industries based off oil money (HRW 2004:8).

With a total GDP of just over $100 billion, Angola produced around $62 billion worth of petroleum in 2014, securing Angola's oil-state status. However, the enclave of Cabinda currently accounts for about two-thirds of Angola's total oil production and 90% of the Angolan government's expenditures (Corkin 2017:3). At around $41 million annually, Cabinda is an economic powerhouse for Angola, but it remains one of the poorest provinces of this African state. Angola's offshore oil is divided into 35 blocks, with Cabindan oil fields comprising of Blocks 0 to 4 (Corkin 2017:5). According to Luxner (2004), while Angola possesses some onshore oil, 70 percent of its petroleum comes from offshore reserves, especially in Cabinda, leading Corkin to dub Cabinda as an 'oil enclave economy.'

Since the MPLA took over Angola, it has been a socialist state. Even the Angolan flag, though depicting a gear and a knife, largely resembles a hammer and sickle. Due to this largely centralized political nature, the petroleum produced in Cabinda and elsewhere in Angola is centrally managed in Luanda. Because of this, Cabinda never sees much oil revenue, as this money is directly sent to Luanda first, and then distributed to Angolan provinces. It is unclear how the *Ministério da Assistência e da Reinserção Social*, the Ministry of Assistance and Social Reintegration (MINARS) distributes oil revenue, as they operate on a project-by-project basis (HRW 2004:9; KPMG 2002). Transparency issues aside, much of the Cabindan population lives in wooden huts and without electricity, despite their oil-rich seashore. Compounding problems, many foreigners working on oil rigs drive up local prices onshore, rendering Cabinda even more

expensive for locals (Redvers 2012). Influx of foreign monies from these workers drives up necessary food and healthcare items in Cabinda without spurring much economic development in the local economy, leaving residents with a combination of higher prices and not enough work.

Similar to the Algerian Civil War, the petroleum in Cabinda is located in a remote location. While Cabindan oil is not located in the middle of the desert, its offshore status has somewhat protected Angola, and its nationalized oil company, Sonangol, from rebel sabotage. This has allowed Angola to extract petroleum from Cabinda in a fairly safe and consistent manner, while simultaneously supporting large oil MNCs operating in Angola, such as Chevron, ENI, and Total. Even so, rebels managed to kidnap foreign oil workers and somehow even visit an offshore oil platform. While they did not attempt to sabotage the oil platform, they managed to threaten workers on the oil rig in a somewhat unorganized fashion. This work will later show how the opposite was the case for diamond mines. As *Hypothesis 5* expects, petroleum did not play a large role in rebel activity despite it being used to the government's advantage. For its part, Luanda has a clear economic interest in holding on to Cabinda. This enclave is important to Angola not only for economic reasons, but also for geopolitical ones as well. Since it is often the prey of neighboring states (and sometimes colonial powers) seeking to annex the resource-rich region, Angola has been forced to concentrate a lot of its military and diplomatic resources on preserving the connection between Cabinda and Angola and creating a united Angolan-Cabindan *raison d'etre* (Dos Santos 1983:103). Yet this clearly does not sit well with most Cabindans, especially militant separatists.

It is interesting to note that Angola's official stance in keeping Cabinda as part of the state is its national identity, while Cabindans, for their part, hardly identify with their offshore petroleum. Both sides of the Cabinda separatist war are identifying themselves on what political scientists would call constructivist lines. For the analyst, it is necessary to decouple actions from reality. While Angola may feel that Cabinda is part of their country, their motto of 'Angola from Cabinda to Cunene' may be synthetically and symbolically chosen given Cabinda's oil-rich sector. Cabindan militarists probably identify as independent from Angola and grind their teeth at Chevron and Sonangol tapping their resource wealth while their population lives in poverty. If we were to only analyze their language, we run the risk of underestimating the importance of Cabinda's oil potential in the Angolan economy. However, examining FLEC-FAC actions against oil platforms and Luanda's tight grip over Cabinda's petro-wealth highlights the importance of petroleum in Cabinda.

The Cabinda War is first and foremost one of independence, and that fact should be emphasized. Yet after the initial fighting began, the war eventually (and invariably) gravitated toward the petroleum industry. FLEC's main targets were Angolan occupational forces, but when they desired to capture international attention, they shifted their focus to kidnapping foreign oil workers. We should again note how rebels did not try to capture the petroleum or attempt to siphon it from governmental clutches and sell it in the black market; FLEC targeted oil workers instead. While on the surface these actions are not similar to the GIA destroying part of a pipeline in Algeria, it is, as *Hypothesis 5* expects, a form of sabotage.

FLEC's actions run in congruence with Ross's (2004:12) second hypothesis, stating that the more non-lootable a resource is, the more likely it will lead to separatist conflicts, while simultaneously concurring with the predictions of *Hypothesis 5*. In each of the five cases that Ross points out, including Cabinda, the separatists had grievances over the distribution of wealth of non-lootable resources. Instead, in the Cabindan example, as with the Algerian example, we observe patterns of sabotage, kidnappings, and threats, rather than attempts to capture the resource. Yet, contrary to Ross's hypothesis, the Algerian example illustrates a non-lootable resource in the middle of the desert, but Algeria did not experience a secessionist movement. Cabindan rebels, on the other hand, have to not only contend with problems unique petroleum's properties and the culture modern society has created around it, but also the process of developing an extensive client base around an illegally-obtained resource. Given this cost-benefit analysis, FLEC and other rebels opted to disrupt Angolan extraction of petroleum rather than stage a takeover with their own workers and infrastructure. This occurred not because the resource was non-lootable —though it was—but because the resource happens to be petroleum, which poses a slew of other logistical challenges to illicit groups outside of economic barriers to entry. We will now assess the much larger Angolan Civil War (1975-2002) and how resources played a role in the broader conflict.

The Angolan Civil War (1975-2002)

As we noted with the Cabinda War, Angola was formerly a Portuguese colony that, after a war of independence, was immediately thrust into a civil war. Three main domestic forces fought against each other during the civil war. On one hand was the

MPLA, founded during the Portuguese colonial era, and composing of largely the Ambundu ethnic group, socialist intelligentsia, and the *Partido Comunista Angolano*, the Communist Party of Angola (PCA). The MPLA was largely fighting against UNITA, founded in 1966, which was composed of largely Ovimbundu ethnic groups that had also fought against Portuguese colonial rule (Guimarães 2016:129). Allied with UNITA were the FNLA, formed in 1954, and largely a Bakongo separatist movement in northern Angola, spearheaded by the CIA-backed Holden Roberto. The Angolan Civil War was largely a geopolitical power grab, but we should not underestimate the ethnic disparities between the three internal forces active in the fighting. This ethnic tension was exacerbated by centuries of Portuguese rule. The friction "between *mestiços*[63] and *assimilados* on the one hand and non-co-opted Africans on the other emerged as one of the characteristics of MPLA-FNLA rivalry" (Guimarães 2016:138). Because of the Portuguese synthetically adopted caste system in Angola, the FNLA largely viewed the MPLA as *assimilados*, assimilated, by the colonialists, in terms of their higher education, superior living conditions, exemption from forced labor, and privilege to own property (GRAE/FNLA Press Release 1962:150-151). As was the case in India with the British and Rwanda with the Belgians, the synthetically exercised imperialist caste system preferred the Ambundu ethnic group to other communities. Jonas Savimbi, the former leader of UNITA, expressed this sentiment:

> It may sound like racialism, and it is certainly not the way we feel today because we have learned a lot. But it is a fact that it was very difficult at that time for blacks to understand why mestizos should be leading a liberation movement to fight the Portuguese. It was not clear to us that

[63] The term *mestiço* generally refers to someone with mixed Angolan and European heritage.

> mestizos were suffering in Angola; they were privileged people (Bridgland 1986:45-46).

The sparks and frictions leading to civil war, while largely influenced by Portugal, were an internal and ethnic power struggle between multiple groups in Angola. Yet, this internal struggle quickly developed into an internationalized civil war when domestic parties hoped to bolster their relative positions by appealing to the two superpowers at the time—the United States and the Soviet Union. Guimarães (2016:2-3) notes that these relationships were partially established by appealing to external rivalries to gain a comparative advantage over competing domestic groups. While initially most groups were anti-colonialists and had some Maoist leanings, the MPLA, led by Agostinho Neto, ultimately sided with the Soviet Union. UNITA and FNLA then had little choice but to affiliate themselves with the United States and its allies.

Countering Soviet control in Africa was a central tenet of the United States during the Cold War. However, even before the Angolan Civil War, Washington had to maintain tight relations with Portugal, as they were not only part of NATO, but also a key component to the wider US doctrine of Soviet containment in Europe. From Washington's perspective, a Portuguese alliance was key in keeping the Lajes base in the Azores, a military installation that Dean Acheson described as "the single most important we have anywhere" (Coker & Tyson 1985:63; Guimarães 2016:370). Even before Angola received its independence from Portugal, voices in the US considered Angolan independence to be, in Robert Kennedy's words, 'just and inevitable' (Antunes 1991:192; Schlesinger 2002:562).

In the end, the US had the choice of allying itself with either the Marxist-leaning MPLA or the UNITA-FNLA alliance. The US chose the latter not only because of the

ideological difference between Washington and the MPLA, but also because the FNLA leader, Holden Roberto, was an ally of the US-supported government of Mobutu Sese Seko in Zaire. By the time the FNLA began receiving US aid—via the CIA—Holden Roberto had an extensive list of contacts in the US and had already met with President Kennedy (Schlesinger 2002:562). While the exact figures detailing US support for UNITA and the FNLA are inexact, Washington's support for the rebels was largely sporadic, contingent upon not worsening relations with Portugal, yet ensuring that the Soviets made no inroads in Angola. Then, sometime after the Angolan independence, the CIA had a meeting with Kissinger, affirming that despite the FNLA's propensity for corruption and military incapacity, they would provide "the most stable and reliable government" (Morris 1976:20) while simultaneously indicating to Sese Seko in Zaire that Washington was sympathetic to their ally in Angola (Bender 1978:75). As geopolitical forces moved in Washington and Moscow, the CIA officer in charge of operations on the ground in Angola, John Stockwell, wrote a book titled *In Search of Enemies* critiquing Washington's involvement in the war. According to reviews, Washington's goal in Angola "was not to keep out the Cubans and Soviets but to make their imperial efforts as costly as possible to prove that, after Vietnam, [the US was] still capable of a response, however insane" (Galbraith 1984). According to Stockwell, US involvement in Angola was never meant to win the war for the UNITA-FNLA alliance; rather it was to bleed out the Soviet-backed MPLA so that Moscow would not win an easy war in Africa.

Unease with US arms sales to Angola soon began to brew in Washington, leading Senator Dick Clark (D, IA) to attach an amendment to the US Arms Exports of 1976 barring aid to private military groups in Angola. This motion, known as the Clark

Amendment, in the eyes of the CIA did not have a decisive effect on the military situation on the ground (Gates 1983:2). According to the same document, without the Clark Amendment, South African forces "might well have remained involved in the conflict for a time, but it is debatable whether Pretoria would have been willing over the long term to pay the domestic and international political costs of a protracted struggle" (Gates 1983:3). The CIA furthermore doubted that South African forces would be enough to overpower the combined Soviet and Cuban efforts, and that Pretoria must have known this by 1976 (Gates 1983:3). In any case, after the Clark Amendment passed, the CIA began lobbying other counties, such as Morocco, through which to train and support UNITA by proxy (Mamdani 2002:769).

Naturally, if the US backed the FNLA and UNITA, the Communist bloc supported the MPLA. However, it was not the Soviet Union, but Cuba, which sent upwards of 35,000 troops to Angola. After an initial meeting with Che Guevara in 1965, the Cubans began training the MPLA in the Congo, increasing their support over the 1970s and 1980s (Vines 2016). Naturally, the Cubans and MPLA had similar Marxist ideologies, but there were other, more subtle connections between both groups. From the Angolan perspective, Cubans "carry impeccable ideological credentials" and for the Cubans, "the Angolan mission is seen as a means of reviving revolutionary spirit in a younger generation. Moreover, the Cubans, with their Afro-Latin roots, blend in easily" (Brooke 1987).

Even though the Cubans became embroiled in the Angolan Civil War to the point that it became known as 'Cuba's Vietnam' (Nash 1987), their MPLA allies did not always appreciate their presence. Few Cubans bothered to learn Portuguese, instead

relying on *portuñol* (*portunhol* in Portuguese), a salad of Spanish and Portuguese. From a more cynical standpoint, many Angolans were hesitant to allow a new group of foreigners to fight in their country after they had finally shaken off the Portuguese (Nash 1987). According to *Newsweek*, originally, Cuba had no interest "in long-term engagement, but the MPLA was able to cleverly draw on Cuba's foreign strategy of internationalist solidarity, whereby the West African country paid for the services it received in a mixture of foreign currency and local kwanzas. Far from "being a clientelist relationship, this enabled the Angolan government to influence the process and it locked Cuba into a longer-term commitment than it had initially anticipated" (Vines 2016). From the Cuban perspective, this war was purely ideological, as Cuba had few geopolitical gains from a prolonged war in Angola. The Soviet Union, meanwhile, got the best of both worlds; without having to sacrifice blood and (much) money, it allowed a Latin American ally to do its work for them while reaping the resource benefits that an oil-rich ally could provide, while ensuring a geopolitical base in the Southern Atlantic.

Cuban engagement in Angola was aimed primarily to support the MPLA's strategic position of power, and they made no effort to encourage reconciliation. The driver "for that came from declined oil prices of the mid-1980s and the knock-on effect of Cuba increasingly looking to reduce its exposure in Angola and the MPLA government concluding that it had no choice but to try to negotiate with UNITA and its enemies" (Vines 2016). This opened the possibility for the New York Accords, resulting in the withdrawal of Cuban soldiers under UN supervision in 1992 (Vines 2016). Cuba was much more involved in supporting the MPLA than the Soviet Union, but this superpower still managed to influence the outcome of the war.

While Holden Roberto was developing a rapport with Washington officials, Agostinho Neto began making contacts in the Soviet Union (Klinghoffer 1980:4). Soviet arms deliveries began during the Angolan war for independence and continued even after the MPLA gained a strategic advantage not only over the FNLA and UNITA, but also against the South African invasion from the south (Klinghoffer 1980:4). Moscow not only provided Cuban-MPLA forces with small arms, but also conducted airlifts, military transports, and delivered ammunition, tanks, and other heavy equipment (CIA 1977:4). While Moscow's primary goal was to weaken the US-backed UNITA-FNLA alliance, a secondary goal was to force back South African forces, whose apartheid stance stood in direct contrast to Soviet ideologies.[64] Beyond the immediate goal of securing an MPLA victory, Moscow was interested in reestablishing its revolutionary credentials, halting Chinese[65] advances in Africa, demonstrating their capabilities after failures in Chile and Portugal, and securing a base for maritime and air activities in Angola (CIA 1977:4-5). As the reader will note, the Soviet buildup, Cuban intervention, and US involvement in the Angolan Civil War was largely a proxy war for the superpowers, but what role did resources play in this conflict?

Until its civil war began, Angola's economy was quite diversified and enjoying substantial growth. As Ross (2004) notes, from its time as a Portuguese colony in 1960 to

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[64] South Africa's stance in the Angolan Civil War was largely non-committal, though they did invade from the south. In the late 1970s and early 1980s, South Africa, due to its apartheid status quo, found itself with very few international allies, especially in the Western bloc. From the US perspective, President Reagan expressed his displeasure with South African racial policies by naming Edward J. Perkins, an African-American foreign service diplomat, as US ambassador to South Africa.

[65] President Nixon began reaching out to China in 1972 to drive a wedge between the Sino-Soviet bloc. His meetings with Mao Zedong and Zhou En Lai acted as catalysts for increasing strain between Moscow and Beijing.

the year before the civil war, 1974, Angola sustained a consistent economic growth of 8%. However, once the civil war began in 1975, the economic structure collapsed due to both the conflict and the new socialist government's policies (Ross 2004:338). Then, during the war, industrial output dropped by almost half, rendering Angola even more dependent upon natural resources (Minter 1994). This is the duality of extreme natural resource wealth pinned against extreme poverty that plagues Angola.

As observed from the previous section, Cabinda is oil-rich, but what resources does mainland Angola possess? Le Billon (2001b:565-566) illustrates how not only Angola is diamond-rich, we also dub it as 'rich' because we socially constructed an industry around diamonds and wedding rings. Diamonds are not only recognized as a 'girl's best friend,' they are also the best friends of Angolan rebels and belligerents. The major diamond mining sectors of Angola are in Huambo (formerly, Nova Lisboa), near where UNITA's headquarters were, and in the eastern Lunda region. Additionally, the Catoca Diamond Mine, located in northern Lunda, is the fourth largest diamond mine in the world. Importantly, it is also a deposit of kimberlite diamonds (Mining Technology 2018a), rendering it 'non-lootable' by Snyder and Bhavnani's (2005:565) standards. Below is a map showing diamond-rich regions of Angola.

Figure 26: Diamond-rich regions of Angola (de Boeck 2001:548).

According to scholars, such as de Boeck (2001), diamond smuggling in Angola has not changed much since Portuguese imperialist times. Throughout the 1980s and 1990s, the "diamond trade, the modes of commerce, the use of caravans to carry wealth in things or in people into Angola, even the trade routes themselves, did not differ drastically from their colonial and pre-colonial counterparts" (2001:551). Yet it was in the mid-1980s that UNITA began attacking diamond mines in Lunda, driving out local firms, and disrupting world diamond supply. Throughout the same period, there was a steady increase in Congolese diamond output, not only by artisanal diamond miners but

also from the influx of Angolan diamonds smuggled into Congo through informal channels. The Congolese, for their part, began to cross the border[66] into Angola and sold commodities, ranging from gunpowder to chewing gum, in return for Angolan diamonds (de Boeck 2001:552-553).

Illicit diamond mining became rampant toward the 1990s. UNITA attempted to drive the MPLA out of the Cafunfo diamond mine twice, eventually succeeding in 1992 "killing the expatriate staff, sabotaging the mine's equipment and executing those suspected to be *anti-mutim*"[67] (de Boeck 2001:553). UNITA then brought in tens of thousands of *garimpeiros*, unlicensed diggers, to work on their diamond mines. Most *garimpeiros* were penniless Congolese youngsters from urban areas and forced into hard labor mining for diamonds in Angola (Misser & Vallée 1997; de Boeck 2001:554; Bayart et al 2009). From inside the camp, internal security was not only controlled by UNITA, but also by *artivistes*—UNITA-backed security responsible to punish, arrest, and execute miscreants. They also safeguarded diamond extraction, making sure nobody stole diamonds (de Boeck 2001:554). Foreign currencies were used as part of this measure. The sudden dollarization of Angola throughout this period even caused a strong devaluation of local and national currencies, not only in Angola but also in the Congo (Kalala & Ponyo 1997). The sedentarization of diamond camp life, control of mines by *artivistes*, and the influx of new currencies for illicit 'blood' diamonds supports the

[66] According to de Boeck, "when people started to swallow diamonds to prevent soldiers and rebels from robbing them of their stones, many people ended up having their intestines slit open by these diamond-hungry soldiers and rebels" (2001:553).

[67] The *anti-mutim* were anti-terrorist rebels founded by MPLA but viewed by UNITA as mostly MPLA spies.

distinction made by *Hypothesis 5*, believing diamond states to suffer from more organized rebel groups in relation to the resources they capture.

Diamond mining was a lucrative business for UNITA, helping fund their resistance to the MPLA. According to de Boeck (2001:558), experts estimated that the Lozamba diamond mines, slightly south of Cafunfo, earned UNITA from $300 to $600 million annually (Financial Times 1996). In contrast, Endiama, Angola's national diamond company, likely generated between $100 and $150 million in diamond revenues during the same period (de Boeck 2001:558). Naturally, the Angolan government neither wanted UNITA rebels to fund their activities through blood diamonds nor miss out on revenues from potentially lucrative exports. With this in mind, they created the Angola Selling Corporation (ASCORP) in conjunction with Belgian and Israeli firms to increase state revenue (Dietrich 2001). According to de Boeck, ASCORP did their job very well; it also managed to contain the *garimpo* situation and "prevent diamonds mined by UNITA from being exported through the official channels in Luanda as frequently happened in the period between 1995-1998, when Angolan government and army officials regularly engaged in deals with UNITA in Lunda Norte" (de Boeck 2001:559; Hodges 2001:160). This aspect of the Angolan Civil War gets even muddier when army generals and members of the MPLA began to "acquire concessions for minimal fees before transferring most of the operating costs and risks to their foreign partners" (Le Billon 2001a:70). This not only allowed the Angolan government some sovereignty over diamond production, but ironically, partially incorporated diamonds into the government's patronage programs (Le Billon 2001a:70).

Diamond revenues may have escaped the government's clutches, but Sonangol, Angola's NOC, holds a tight grip over Angolan offshore petroleum (especially in Cabinda). According to Le Billion (2001:61), Sonangol employs fewer than 10,000 nationals with very few local contractors working in the oil industry. Furthermore, oil rents have seldom been used to spearhead economic development or industrial diversification. Much of the public spending stemming from Sonangol profits goes to government administration and the military. Worsening this mismanagement is the uneven centralization of rents focusing on the MPLA-heavy Luanda, and particularly neglecting UNITA-backed Ovimbundu populations (Le Billon 2001a:63). Petroleum, then, has actually exacerbated conditions on the ground due to Luanda's predisposition of utilizing oil rents for military objectives at the expense of social services that would benefit the population, thereby reinforcing economic distortions (Savoye 1997; Le Billon 2001a:63). Not only do such policies purposefully alienate ethnic populations, they allow considerable opportunities for corruption (McGreal 1999). While petroleum may have helped the MPLA stave off advances from apartheid South Africa and UNITA's rebels, it came at the expense of mass economic underdevelopment. Finally, many in the international community believed petroleum to be to the MPLA what diamonds are to UNITA—a way to fund an increasingly militarized conflict in Angola.

For the purposes of *Hypothesis 5*, we must assess the differences between how diamonds were exploited in comparison to (non-Cabindan) petroleum. First, if we are to view resource curses as offering multiple outcomes, then the reader will see different trajectories for diamonds and petroleum in Angola. The Angolan Civil War supports Ross's (2004:13) assertion—the lootability of (alluvial) diamonds is a much greater

temptation for rebels than petroleum. UNITA never attempted to commandeer oil fields, but managed to raid and capture some diamond mines, providing them with a generous revenue stream despite the fact that oil remained the government's most lucrative resource. Additionally, the lootability of diamonds clearly influences outcomes of what Macartan Humphreys (2005:508) calls the rebel greed hypothesis. A *homo economicus* perspective of resource extraction would predict rebel takeovers of oil fields rather than diamond mines, due to petroleum's exponentially larger revenue stream. However, as predicted by Ross (2004), the lootability of diamonds overrides rebel greed, as they sought out the easier targets despite oil's larger profits.

Second, the results from the Angolan government's (mis)use of petroleum rents ended up funding the military. Revenues were not only spent on administrative costs for the government and clientelist redistributions targeting the presidential entourage, but also the state *nomenklatura*,[68] and the political elite (Le Billon 2001a:65). Diamond revenues, on the other hand, were spent solely on funding rebels. UNITA espoused no social or welfare programs for the masses from their diamond revenues—after all, they were the rebels and not the government. While the MPLA's reliance on petroleum produced economic distortions that influenced the entire state, UNITA's diamond production led to no economic resource curse—rather it was an increasingly violent curse Angolans felt.

Third, international responses to the Angolan Civil War were different contingent upon the resources in question. For example, after the war formally ended in 2002, the United Nations convened to create the Kimberley Process attempting to rid the world of

[68] The *nomenklatura*, nomenclature, are categories of people meant to hold governmental or administrative positions in a state.

blood diamonds in response to not only the civil war in Angola, but also that of Sierra Leone. However, we see no such project for Angolan petroleum, even though oil was used to fund MPLA's increasingly militaristic objectives. The US never boycotted Angolan petroleum, even though rents from this resource were used to undermine Cabinda's independence and fight against the US-backed UNITA. This lends credence to Stockwell's assertion that Washington never wanted the UNITA-FNLA alliance to overthrow the MPLA, but rather watch them bleed while the Soviets wasted resources in Africa. Since the world economy is predicated on oil—and not diamonds—Angolan petroleum was never blockaded while concerted international efforts were made to curb blood diamonds.

Finally, while the Eastern bloc may have only funded one side of this civil war, the Western bloc funded both sides. Cuban and Soviet support for the MPLA provided them with artillery, logistic support, and heavy armaments. It remains unclear and unlikely that many Cubans or Soviets purchased diamonds that would have been smuggled out of UNITA's mines. However, the Western bloc not only provided arms and support to UNITA, but also their consumers likely (unknowingly or unwillingly) bought smuggled diamonds. Furthermore, while the West was funding UNITA and possibly buying diamonds, it was also keeping Sonangol's oil spigots open and purchasing Angolan petroleum, though these rents were primarily used to fund the Soviet-backed MPLA. The contradiction here lies in the shoulders of the West and its policymakers.

The final case study will analyze the impact of diamonds on the Sierra Leonean Civil War (1991-2002). Similar to the other cases, the Sierra Leonean Civil War was

triggered by political power grabs that ended up becoming resource-related, with blood diamonds financing a large percentage of rebel activities.

The Sierra Leonean Civil War

The history preceding the Sierra Leonean Civil War (1991-2002) is strikingly similar to that of Algeria. Yet, as the reader will observe, since Sierra Leone and Algeria do not enjoy the same resources, their wars became radically different. The British occupied what is now known as Sierra Leone until 1961. Unlike the Portuguese, who waged war against the Angolans, Sierra Leone sent a delegation to Great Britain to negotiate terms for independence. One this was granted by the British crown, Sierra Leone adopted a weak post-independence democracy. After its first president, Sir Milton Margai, the government began spiraling into patterns of corruption and despotism, following with economic and political decline (Smillie et al 2000:8). Throughout the 1970s and 1980s, Prime Minister Siaka Stevens, with Cuban and Soviet help, consolidated power and turned Sierra Leone into a one-party state. His terms in office, first as Prime Minister and then as President, are largely characterized as despotic, rife with corruption and exploitation. By 1985, Stevens, now in his 80s, retires and hands over power to his former army chief, Joseph Momoh, who relaxes some of Stevens' policies, but is largely viewed as inept (Smillie et al 2000:10).

Then in 1989, Gaddhafi's protégé, Charles Taylor, from neighboring Liberia, forms the National Patriotic Front of Liberia, and, from the Ivory Coast, invades Liberia, toppling Samuel Doe's government in less than one year, triggering the First Liberian Civil War (1989-1997). The Liberian Civil War quickly spilled over into Sierra Leone in

1990, with 80,000 Liberian refugees pouring into Sierra Leone (Smillie et al 2000:10). By 1991, Foday Sankoh and some allies created the Revolutionary United Front (RUF). The RUF was originally a group of Sierra Leoneans who were part of Charles Taylor's National Patriotic Front of Liberia (NPFL), who attempted to replicate Taylor's success in Sierra Leone. Unlike many non-state groups and revolutionary forces, the RUF made little attempt to win over the hearts of Sierra Leoneans. Instead of seeking civilian approval for logistic support and a political backbone, the RUF's environment was characterized by brutal atrocities, widely unpopular both in Sierra Leone and internationally (Milton 2008:2).

Rather than having a coherent political and military strategy, much of the RUF's "rank-and-file membership comprised of child soldiers, many of whom had been forcibly recruited, the RUF represented a largely illiterate, politically and socially dislocated body of brutalized youths, who despite possessing a myriad of legitimate grievances, were ill-equipped to return (or be introduced) to civil society and channel these grievances through peaceful political discourse" (Mitton 2008:2). Instead of killing civilians, the RUF's strategy was to indiscriminately amputate civilians' arms, legs, lips, and ears. Largely viewed as the most effective way of spreading fear and terror in the civilian population, the RUF purposefully targeted infants and children. According to a Vietnam War veteran who was volunteering in Sierra Leone at the time, David Evans, "if you kill somebody, they go away. They're gone. […] But if you mutilate someone, they are a walking billboard for terrorists" (Quiñones 2006). By 1994, with the help of child soldiers and teenagers high on drugs, the RUF overran Sierra Leonean diamond mines, essentially bankrupting the economy, leaving 50,000 dead and half of the Sierra Leonean

population displaced (Smillie et al 2000:10). The RUF got a reputation for specifically targeting village chiefs, and deliberately sending child soldiers to attack their native towns and villages, which left deep scars on their friends and families (Keen 2005:60).

The next year, the government of Sierra Leone, led by Valentine Strasser, contracts Executive Outcomes, a South African paramilitary group of mercenaries, to combat RUF. By May, Executive Outcomes manages to free the diamond mines from the RUF's clutches. The next year, however, Strasser is ousted in another palace coup and replaced by Julius Maada Bio, who begins talks with the RUF. Negotiations were marred by RUF violence, yet Foday Sankoh of the RUF and Sierra Leone's new president, Ahmed Tejan Kabbah, manage to sign a temporary peace accord. Kabbah promised amnesty in return for peace, suggesting that military action would be the price to pay if the RUF continued activities. Interestingly enough, it was this threat that proved most significant in commencing negotiations (Mitton 2008:5). The Abidjan Accord, as it came to be called, offered the RUF no meaningful governmental positions for key leaders. In this sense, "rather than politically incorporating the RUF into the existing regime where it could share power, the government sought to incorporate it into the democratic system where it would have to contend for power" (Mitton 2008:5).

The Abidjan Peace Accord perhaps predictably fell apart, and by 1997 RUF soldiers ended up releasing 600 prisoners who created the Armed Forces Ruling Council (AFRC). Amazingly, this group eventually allied themselves with their former captors when RUF Major Johnny Paul Koroma, the former coup plotter, invited the AFRC to join in the RUF-led government. Characterizing AFRC-RUF rule is "systematic murder,

torture, looting, rape, and shutdown of all formal banking and commerce in the country" (Smillie et al 2000:11).

As conditions worsened, the Economic Community of West African States Monitoring Group (ECOMOG) is called to step in the Sierra Leonean Civil War, launching an offensive that drives the RUF out of Freetown, Sierra Leone's capital. ECOMOG forces eventually capture Foday Sankoh in Nigeria—he is freed before being recaptured. Meanwhile, in January 1999, the AFRC-RUF alliance re-captures Freetown, leading to more killings, raping, and dismemberments. Additionally, parts of the city are razed, 6000 civilians die, and 2000 children are missing in two weeks (Smillie et al 2000:11). The Nigerian forces of ECOMOG suffer between 800 to 1200 casualties and Abuja planned to back out of ECOMOG and be replaced with UNAMSIL, the United Nations Mission in Sierra Leone. This force was 17,000 strong and managed the disarmament of Sierra Leone throughout the post-conflict years (Gberie 2002).

The role diamonds played in the Sierra Leonean Civil War has attracted a lot of scholarly attention. Kabbah, the former President of Sierra Leone that managed to bring the RUF to the negotiating table, stated, "ours was not a civil war. It was not a war based on ideology, religion or ethnicity, nor was it a 'class war'... It was a war of proxy aimed at permanent rebel control of our rich diamond fields for the benefit of outsiders" (Kabbah 2001). According to Gberie (2002:2), although estimates of conflict diamonds range between 4 and 15 percent of world totals, this figure can equate to over $1 billion in revenues for rebels controlling the mines. Still others consider one fifth of diamonds to have been illicitly traded, either through violence, smuggling, money laundering, or tax

evasion (Smillie 2002). In Sierra Leone, the UN estimates that the RUF traded between $25 and $125 million worth of diamonds (UN 2000; Gberie 2002:2).

Diamonds are easily smuggled, and they provided funding for RUF rebels, while simultaneously keeping those monies away from government forces. As long as the country remained at war, diamond smuggling would be possible, and for this reason, diamond profits represented a valuable incentive for every armed group to continue fighting (Keen 2005:50). Even after the UN force came to Sierra Leone, it was not for another year that they could oust the RUF from their diamond mines in the Kono district. Many of the civilians working those mines were RUF captives laboring under indentured statuses (Gberie 2002:4). Additionally, even after UNAMSIL was on the ground in Sierra Leone, smugglers still managed to trade diamonds without their knowledge, notably to Lebanese traders in communication with al-Qaeda operating in Sierra Leone (Farah 2001). These instances were more than mere speculation. According to Gberie, a UN Expert Panel reported that Issa Sesay, the RUF leader at that time, "flew to Abidjan late in 2001 with 8,000 carats of diamonds which he sold to two dealers of undisclosed identity. Apparently these dealers were 'using a Lebanese businessman' who ran errands for them between Abidjan and the Liberian capital, Monrovia" (2002:4; UN 2000).

Hypothesis Conclusions

Unlike the petro-trade, the RUF only needed a few smugglers to mix blood diamonds with legally mined ones. Whereas to smuggle petroleum out of a state to fund a rebel group would require a multitude of buyers, this is not the case with diamond smugglers. As we see with the Sierra Leonean case, a few Lebanese smugglers are

sufficient to mix illicit and licit diamonds. This is one of the main differences between diamonds and petroleum, and likely the reason why Islamist rebels never bothered to capture Algerian oil deposits.

Consistent with Ross's (2004) hypotheses, the lootability of diamonds contributed to the RUF's attempts to overthrow the Sierra Leonean government. In every case analyzed for *Hypothesis 5*, the violence began due to non-resource related reasons. However, once the violence commenced, resources began playing a larger role in the conflict. The purpose of *Hypothesis 5* is to illustrate that petroleum and diamonds play different roles in civil conflict. Whereas Ross (2004) expects non-lootable resources to lead to separatist movements, this work argues that the intrinsic value of petroleum is a greater force in determining rebel activity than its non-lootability. Securing consistent buyers and high up front costs of infrastructure are barriers to entry that dis-incentivize rebel groups. Furthermore, the inherent international attention garnered for disrupting the flow of petroleum in the world market is another barrier for rebels unrelated to the non-lootability of oil. This is not the case for diamonds. As we clearly saw, and as Ross (2004) postulates, while extracting diamonds from a mine is logistically difficult, the barriers of selling these gems are much lower than petroleum, indicating that rebels are more likely to capture this resource over petroleum. We furthermore noticed no sabotage of diamond mines and a larger network of control over these mines by rebel groups to ensure production of resources, two phenomena absent from rebel activity regarding the petroleum trade.

Below is a chart detailing the differences between the civil wars in Algeria, Angola, and Sierra Leone illustrating how diamonds and petroleum led to different

results in these civil wars. Notably, because Angola possesses both of these resources, it suffered from both types of conflict in different regions of the state, with Cabinda suffering from petroleum-related violent curses and the mainland falling victim to diamond-related curses.

Table 12: Characteristics of Rebel Activity Regarding Diamonds and Petroleum

SIERRA LEONE	ALGERIA	ANGOLA
DIAMONDS	PETROLEUM	DIAMONDS & PETROLEUM
1) Rebels capture diamond mines	1) No takeover of oil fields	1) Both
2) Diamonds fund rebel activity	2) Oil benefits the government	2) Both
3) No sabotage of diamond mines	3) Oil infrastructure sabotaged	3) Both
4) Organization to protect mines	4) No protection of oil fields	4) Both

The next hypothesis seeks to determine differences in the types of violence in diamond- and petroleum-rich resource curse states. Unlike *Hypothesis 5*, which took a first-image approach to the resource curse, delving into character incentives, the next hypothesis remains ensconced in a second-image perspective, analyzing differences in state outcomes among diamond- and petroleum-rich resource curse states. By separating civil violence from international violence, this hypothesis illustrates how diamond- and petroleum-rich states potentially suffer from different curses.

Testing Hypothesis 6

Petroleum-rich states are more susceptible to international conflict and, conversely, diamond-rich states are more likely to experience civil violence.

Conflict exists in many resource curse and non-resource curse states, yet this hypothesis expects the type of conflict to be different depending upon the resource in question. *Hypothesis 6* predicts that petroleum-rich states would be more prone to international violence due to the large revenue streams generated from oil and the

technical expertise associated with the extraction of this resource. As described in the previous hypothesis, the large network and expensive infrastructure necessary for petroleum extraction render it non-lootable for rebels. Conversely, this hypothesis expects diamond-rich states to be more likely to experience domestic or gang-related (read: civil) violence due to the lootability, high value, and few barriers to entry for this resource. Some may consider such a distinction to be splitting hairs, as it matters very little to the victim if they are being attacked my domestic or international forces. However, if there is a correlation between civil violence with diamonds, and international violence with petroleum, then scholars may ultimately have a better understanding of resource curse conflict. If analysts consistently observe patterns of different types of violence among resource curse states, then we have a theoretical springboard from which we may launch a qualitative analysis to peek into each state's inner conflict.

In order to test this hypothesis, this dissertation will adopt conflict and violence data from the Center for Systemic Peace, and pin it to Ross and Mahdavy's (2015) oil and gas dataset, along with the Kimberley Process data on diamonds. The Center for Systemic Peace, based out of Vienna, measures magnitude scores for different types of political violence, internally displaced persons, high casualty terrorist bombings, coup d'états, and state failures. For this ratio-based dataset, a score of 0 indicates no systemic violence and scores with larger numbers denote increased levels of violence.[69] Some

[69] The UCDP/PRIO Armed Conflict Dataset is another resource; yet, it comes with some drawbacks—either incomplete data or too finely grained data. The UCDP/PRIO data is segregated into extra-systemic armed conflict, interstate-armed conflict, internal armed conflict, and internationalized internal armed conflict; but it measures *instances* of civil and international violence, rather than disaggregating *magnitude* of violence. The two codes for magnitude are 1 for fewer than 1000 conflict deaths, and 2 for over 1000 conflict-related casualties. The dataset is conveniently separated into topics relevant to

problems immediately arise with this line of thinking—both theoretical and empirical. This dissertation will begin with the theoretical. Increases in international or civil violence do not necessary spell out a resource curse or may result as a consequence of the resource at all. It is in cases such as these that we need to supplement the statistical analyses with qualitative data. Furthermore, large-*N* quantitative data does not capture the fine-grained, disaggregated domestic and international processes that are so important in understanding differences among resource curses. On a more empirical level, it may also be the case that there exists ethnic and civil strife within a state but unrelated and distant from the discovery of petroleum and diamonds. Some literature explores how diamonds and petroleum may prolong certain conflicts and incite wars. As previously stated in the literature review, Omgba (2009) found that petroleum, but no other resource, allowed African incumbents to remain in power. Brückner and Ciccone (2010) additionally found that downturns in the prices of necessary commodities precede outbreaks in violence. Bazzi and Blattman's (2013) support this logic, finding that increases in commodity prices lead to pauses of violence.

Another challenge in measuring the relationship between violence and resource production involves the how diamond extraction is measured. This work is measuring *reported* production of petroleum and diamonds. It may be acceptable to trust the World Bank, IMF, OPEC, and Ross and Mahdavy's (2015) datasets for petroleum production, as they are generally reliable, but the same cannot be said for diamond production.

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the *theory of resource curses*, but due to the lack of granularity in the magnitude of conflict, this dissertation hesitates to use it for testing *Hypothesis 6*. On the other hand, UCDP/PRIO offers too finely grained data as well, accounting for types of violence, dyad names, sources, and even longitude and latitude. While the dataset is impressive, it is simultaneously sliced too thinly or too broadly for testing this hypothesis.

Compendiums of petroleum production, exports, and imports tend to be gathered mostly for industry and scholarly purposes, whereas diamond production measurements are driven by human rights incentives. Additionally, and most importantly, blood diamonds are often smuggled out of a country, meaning that they will not be reported in official datasets. Once diamonds are smuggled out of Sierra Leone, Liberia, or Angola, they are purposefully mixed in with other diamonds from India, Russia, and Canada, and cannot be traced back to their origins in West Africa. Naturally, these conflict diamonds do not appear in official datasets, rendering it difficult for the analyst to accurately measure diamond production. However, if the statistical analysis shows that diamond-rich states are more susceptible to civil conflict, we must ask ourselves if diamonds are contributing to this upswing in violence? The same would be true for petroleum. Since numbers can only take us so far and one cannot control for every variable, a supplemental qualitative analysis is necessary to evaluate the quantitative empirical support for this hypothesis. This hypothesis will qualitatively analyze a unique scenario among resource curse states, when two petroleum-rich states fought each other during the Iran-Iraq War (1980-1988).

First, this dissertation will quantitatively measure instances and magnitude of civil and international violence in resource curse states, as depicted from the Center for System Peace's dataset.[70] Additionally, the present work is collapsing the variables for civil violence, civil war, and ethnic conflict into one composite score. While the Center's

[70] According to the *Qualities of Governance* dataset, the Center for Systemic Peace determines major episodes of political violence as "annual, cross-national, time-series data on interstate, societal, and communal warfare magnitude scores (independence, interstate, ethnic, and civil; violence and warfare) for all countries." The full set (1946-2012) "includes both country data and scores for neighboring countries and regional context for all independent countries (does not include independence wars)" (Teorell et al 2017:152).

dataset is very useful, separating each state into yearly numbers and creating slightly different categories for intrastate violence may be slicing it too thin for the purposes of testing *Hypothesis 6*. With this in mind, this work is also creating a composite score of civil violence and warfare, entitled 'composite_civ' in the bivariate regressions below. The same strategy will be implemented for international violence and international warfare, which will be combined into one score, 'composite_int.' Even though there are still many states scoring '0' (thankfully), this combined data should provide more testable measures for *Hypothesis 6*.

Quantitative Results

The bar graph below shows the variation in civil and international violence among the resource curse states in this dataset, with the red bars depicting international violence while the blue bars denote civil violence. As can be seen below, only petroleum-rich states experienced significant international violence from 1980 to 2016. It should be noted that except for a blip in Russia and Ecuador's violence, and another in Syria during their ongoing civil war, only three petroleum-rich states experienced substantial international violence—Iran, Iraq, and Kuwait. These three states have not only suffered external invasions (e.g., US invasion of Iraq), but have mostly been attacking each other. The Iran-Iraq War lasted from 1980 to 1988, and Saddam Hussein invaded Kuwait in 1990, which resulted in the Gulf War (1990-1991). Rumors and speculation also abound regarding connections between the US invasion of Iraq and petroleum, with many

suggesting that the war was a mercantilist-style oil grab[71] (Juhasz 2013; Shamoo et al 2007). Placing the US invasion of Iraq aside, the Iraqi invasion of Kuwait was largely due to petroleum deposits on the Iraq-Kuwaiti border. Additionally, as Iraqi troops retreated, they took care to burn Kuwaiti oil fields, leaving an economic and environmental disaster in their wake.

On the other hand, no diamond-rich state experienced international violence during the same time period.[72] Although petroleum-rich states were more likely to suffer from international violence, there does not seem to be such a disparity regarding civil violence; petroleum-rich and diamond-rich states seem to be just as likely to experience civil violence. Naturally, some states are more peaceful than others on the petroleum side (e.g., Bahrain, Gabon, Malaysia, etc.) but the same is true for diamond states (e.g., Guyana and Tanzania). As can also be seen below, Angola and Russia, coded as petro-states to eliminate their duplication, experienced significant civil violence but relatively little international violence during the same time period. *Figure 27* shows the differences in types of violence between diamond- and petroleum-rich states.

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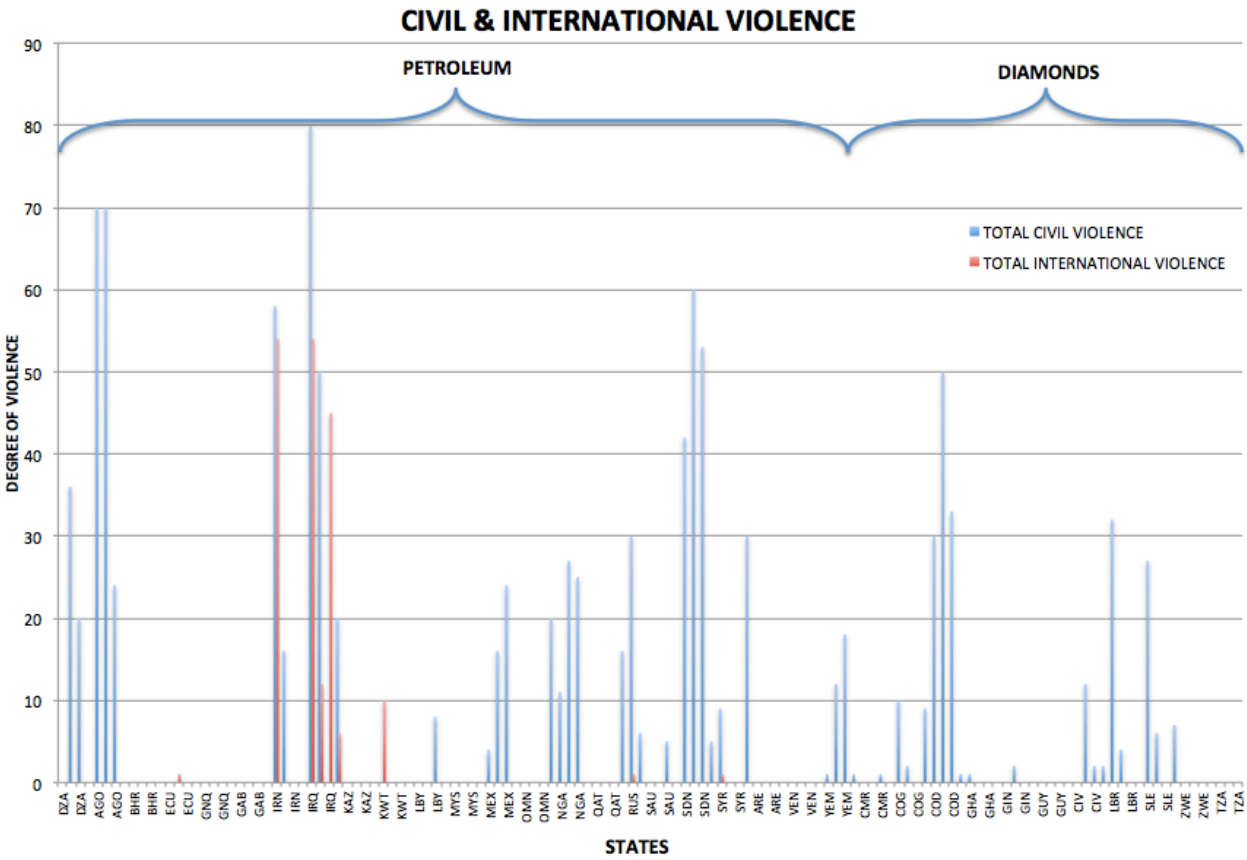
[71] Gen. John Abizaid, the former leader of US Central Command and Military Operations in Iraq, stated that "of course [the Iraq War] is about oil; we can't really deny that" (Juhasz 2013). Former Federal Reserve Chairman Alan Greenspan echoed these thoughts, stating that the "Iraq War is largely about oil" and "people say we're not fighting for oil. Of course we are" (Shamoo et al 2007). Additionally, then-Senator, and future Defense Secretary, Chuck Hagel, agreed, ironically exclaiming, "we're not there for figs" (Shamoo et al 2007).

[72] A potential exception is Russia, coded as both a diamond and petroleum state, which experienced some violence due to the Russian invasion of Georgia in 2008. Russia also invaded Ukraine in 2014, right after the Winter Olympics in Sochi. These invasions are depicted as a small blip on Russia's bar, and are likely not linked to diamonds. Supporting *Hypothesis 6,* there is a stronger case for the link between the Russian intervention in Ukraine and petroleum, as the port at Sevastopol is a prime location for access for oil tankers in the Black Sea.

Figure 27: Bar Graph of Civil and International Violence



As the reader will note from the bar chart above, civil violence is quite prevalent between both diamond- and petroleum-rich states. However, international violence, depicted in red, is only found among petroleum states, partially supporting *Hypothesis 6*. This bar chart, however, has some limitations. It is based on a binary measure of resources and cannot control for the quantity of diamonds or petroleum a state produces—states are coded as having either petroleum or diamonds. In order to develop more granularity in analyzing the relationship between resource production and conflict, this dissertation will conduct bivariate regressions among resource curse states, to assess patterns among diamond- and petroleum-rich resource curse states. The main reason for a bivariate analysis, rather than a multivariate assessment, is that *Hypothesis 6* follows in

the footsteps of Lujala (2010) and Collier (2010a) in believing that simply having the resources in the ground is enough to trigger some sort of violence, with this work teasing out differences on whether such violence is civil or international in nature. Because of this, extraneous factors, such as GDP per capita or population will not be taken into account. Yet, possible omitted variables will be given further consideration within the qualitative analyses further below. The table below depicts the relationship between diamond and petroleum production along with civil and international violence.

Table 13: Bivariate Regression (Resource Production and Type of Violence)

	CIVIL VIOLENCE		INTERNATIONAL VIOLENCE	
	Diamond States	Petroleum States	Diamonds States	Petroleum States
Diamonds Production	3.49e-10**		1.99E-11**	
	(1.48e-10)		(7.97e-12)	
Petroleum Production		-6.27e-13		3.77e-13
		(1.31e-12)		(7.11e-13)
Constant	0.444***	1.048***	-0.00156	0.226***
	(0.1406)	(0.0902)	(0.00703)	(0.0488)
Observations	145	763	145	763
R-squared	0.037	0.000	0.042	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

There seems to be a strong positive association between civil violence and the value of diamond production in a state, where an increase in the value of diamonds also increases civil violence. While the estimated effect of diamond production on civil violence is statistically significant ($p < 0.05$), diamond production does not seem to account for much of the variety in civil violence, with the *r*-squared accounting for 3.7% of civil violence variation among diamond states. Though the positive association between diamond production and civil war appears fairly robust, due to the low *r*-squared

values, these models suggest that a large number of additional factors also likely contribute to the incidence of civil violence. Furthermore, because of Russia's double coding as a diamond and petroleum state—and its invasions of Georgia in 2008 and Ukraine in 2014—there is a statistically significant correlation ($p < 0.05$) between international violence and diamond production. As can be observed from *Figure 27,* depicting the difference in international and civil violence among the dataset, petroleum states tend to experience more international violence than diamond states. However, the bivariate regressions show no statistically significant correlation between oil production and international violence. Even though petroleum production is not correlated with international violence, petroleum states do tend to experience more international violence instances than diamond states, as the bar graph above suggests.[73] For the purposes of this hypothesis, more important than petroleum production is the fact that states have petroleum *and* tend to experience more international violence than diamond states. In the next section, this dissertation will analyze the potential for internationalized violence among petroleum states.

Evidently, both petroleum and diamond states seem to be equally susceptible to civil violence. While there may be a correlation among the value of production of

[73] Additionally, and as hinted at before, some of the data does not seem to appear in the Center for Systemic Peace dataset. For example, during the Libyan Civil War in 2011, international actors led by EU forces launched rockets into Libya, yet (perhaps because there was no *bona fide* invasion *à la* Gulf War) this does not appear in the dataset as international violence. During the ongoing Syrian Civil War, dozens of international actors are supporting another dozen domestic groups who all seem to be fighting each other. Yet, the database has a score of 0 for international violence in Syria from the years 2010 to 2016, probably because there are few international forces on the ground, as this has become a by-proxy conflict. Amazingly, as seen in *Hypothesis 5*, throughout the Angolan Civil War (1975-2002), international actors played a very large role in the conflict, with Cuba sending over 60,000 troops and the US and Soviet Union funding their allies, this information does not appear in the Center's dataset.

diamonds and civil violence, there is no such correlation with the value of petroleum production. As can be seen from *Figure 27,* diamond-rich and oil-rich states tend to experience similar (and high) amounts of civil violence. International violence seems to be much more limited to petroleum-rich states, as *Figure 27* does not show one diamond-rich state, again, except for Russia, experiencing international violence. However, even though the bar graph illustrates only petroleum states suffering from international violence, the bivariate regression does not. In order to account for this disparity, this work will conduct a qualitative study of the Iran-Iraq War (1980-1988), which was triggered for reasons exogenous to resource production, but came to involve Iran's—and later Kuwait's—petroleum reserves.

The Iran-Iraq War (1980-1988)

With the notable exception of the Korean War, the post-World War II period saw the United States relying more heavily on the newly created Central Intelligence Agency (CIA), formerly the Office of Strategic Services (OSS). Throughout the 1950s, the CIA supported the overthrow of foreign governments unfaithful to the United States or sympathetic to Soviet ideologies. Along with the State Department, the CIA ousted Jacobo Árbenz Guzmán in Guatemala after he supported an agrarian reform program in the Central American country. A few years later, the CIA additionally supported the failed Bay of Pigs invasion in 1961 to oust Fidel Castro from Cuba without success, after Kennedy pulled out while the invasion was underway. In contrast to the failed operation

in Cuba,[74] the CIA paired with MI6 to overthrow Mohammad Mosaddegh in 1953 in Iran, after his regime, which was once democratic, became increasingly dictatorial. The US replaced Mosaddegh with the Washington-backed Shah, Mohammed Reza Pahlavi.

The Shah soon began losing favor with a majority of the clerics due to his stance on the *laïcité*, or secularization, of Iran. The Shah's policy of *laïcité* combined with the relatively rapid modernization of the country left key sectors of society behind, which increased demonstrations against his regime. As Skocpol (1982:267) notes, the Iranian Revolution was marked by a unique characteristic: the 300,000-strong military was rendered woefully ineffective in protecting the Shah *despite* not suffering from a military defeat in a foreign war. Not only was the military unable to protect the Shah, it was also incapable of replacing him with a junta or another military-backed regime that could preserve existing Iranian institutions. Saddam Hussein in Iraq seems to have noticed this inability, and found a weakness in the Shi'a Crescent that nearly surrounds Iraq.

In Baghdad, the Ba'ath Party had been in power for eleven years before Saddam Hussein became the leader of Iraq in 1979, the same year the Shah was overthrown in neighboring Iran. According to Workman (1991:6), there were multiple social origins for the Iran-Iraq War characterized in racial (Aryan Iran versus Semite Iraq), sectarian (Shi'a Iran against Sunni Iraq), ethnic (Persian Iran and Arab Iraq) and religious ('secular' Iraq and fundamentalist Iran) relations (Workman 1991:6; Farhang 1985; al-Khalil 1989).

[74] The CIA would doggedly continue to overthrow Castro, sometimes engaging in bizarre attempts to assassinate the Cuban leader, ranging from poisoning cigars to exploding multicolored seashells where he would habitually go scuba diving. According to Fabián Escalante (2006), the CIA attempted to kill Fidel Castro 634 different times, using techniques ranging from *femme fatale* to attempting to discredit him by dusting his shoes with thallium salts, which would make his beard fall off.

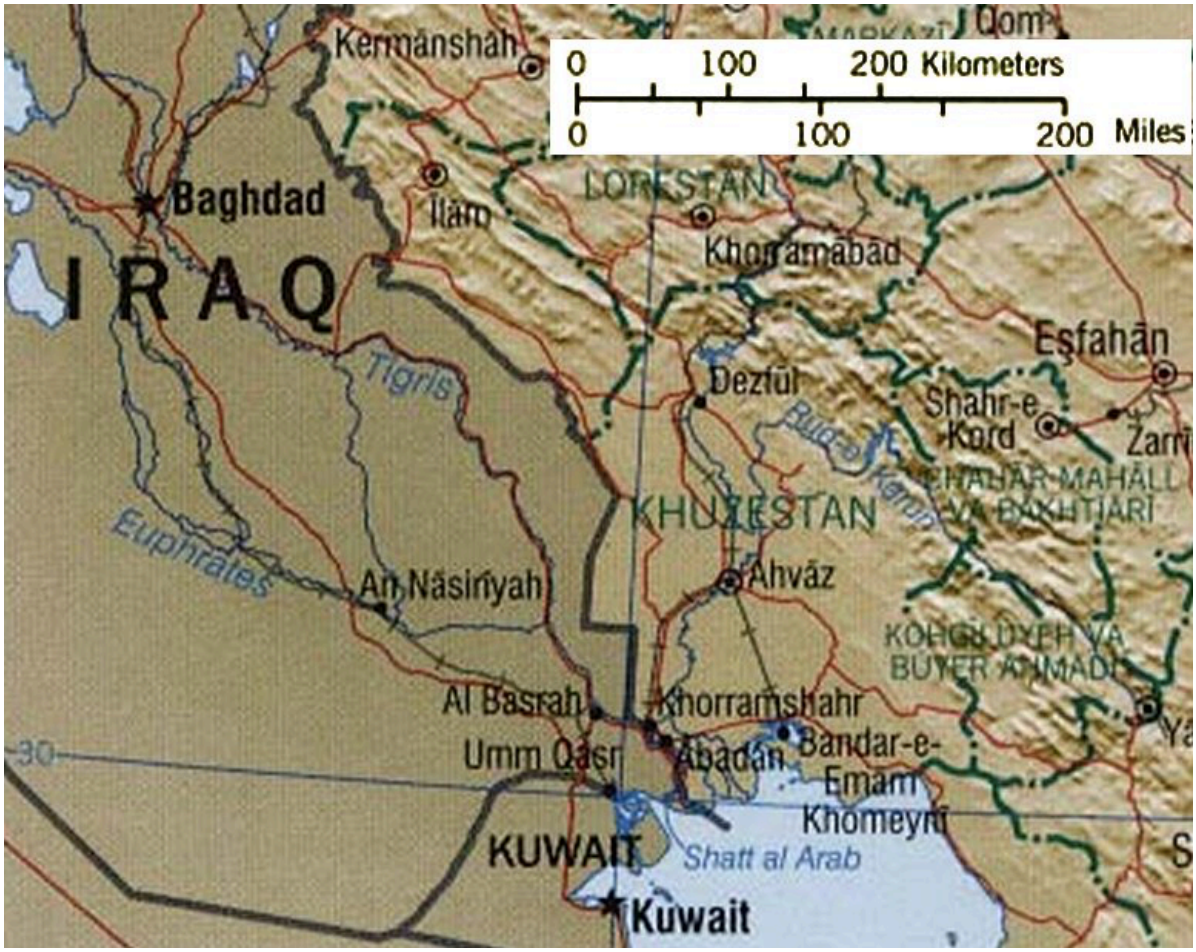
Pan-Islamist, often (mis)understood as Pan-Shi'a ideologies dominant in Iran ran afoul of Saddam Hussein's Arab nationalism and his sense of creeping Shi'ism in the Gulf.

From the geopolitical perspective, tensions between the two states were dominated by disagreements over the ownership of *Shatt al-Arab*, known in Iran as *Arvand Rud*, a small river formed by the confluence of the Tigris and Euphrates demarcating the border between Iran and Iraq. Strategically, this river is also Iraq's only outlet to the Persian Gulf, meaning that if it loses control of the river, Iraq would become a landlocked country. For its part, Iraq felt that sharing the river with Iran would leave it vulnerable to Iranian attacks, especially since Iraq did not enjoy solid relations with other neighbors, such as Turkey, Syria, or Kuwait (Karsh 1990:258). Worsening tensions between the two states was the purposefully fragmented demographic composition of Iraq—part Shi'a and part Sunni, part Arab and part Kurdish—which impeded the crystallization of the country (Karsh 1990:259). Throughout the 1960s and 1970s, Iran sought to drive a wedge between these discrepancies in the Iraqi demographic makeup, supporting Kurdish rebels[75] during the First and Second Iraqi-Kurdish Wars (US State, CIA & DIA 1975:2). In 1975, both states met to come to an agreement over the status of the *Shatt al-Arab* after a sporadic border clashes continued to mar relations. The Algiers Accord, as the summit came to be called, was the first genuine bilateral negotiation between the two states to ostensibly solve this dispute, while simultaneously halting Kurdish aggression in Iraq (Karsh 1990; Shofield 1986:62).

[75] Saddam Hussein would later use chemical weapons against the Iranian-supported Kurds during the Iran-Iraq War (Salih 1995:24). It should be noted that Iran is quite keen on supporting the *Iraqi* Kurds fighting against strongman Hussein, and not necessarily the thousands of Kurds living in Iran.

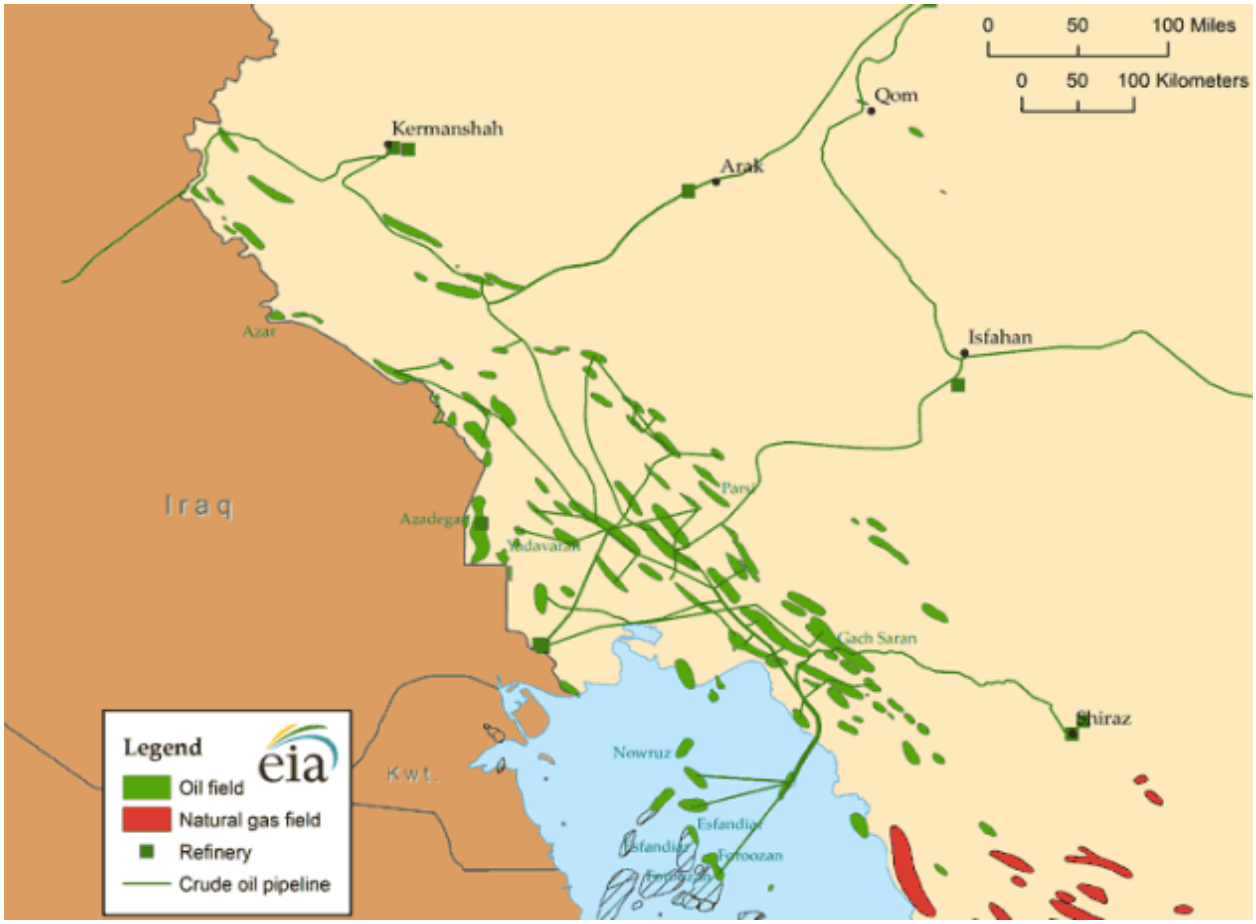
Iraq's unenviably weaker position in the years leading up to the Iran-Iraq War suddenly turned into a 'balance of weakness,' to use Karsh's (1990) term, when Saddam Hussein observed the sheer impotence of the Iranian military during the 1979 Revolution. On one hand, Hussein viewed the Ayatollah's Islamic Revolution as a threat to his supremacy in Iraq. On the other hand, Ayatollah Khomeini perceived Saddam Hussein as a tyrannical leader over the Shi'a population in Iraq (Hardy 2005). For Hussein, an attack on Iran was simply a pre-emptive move to topple the regime in Tehran before the Shi'a Crescent completely encircled Iraq. So a year after the Shah was overthrown, Saddam Hussein discarded the Algiers Accord and mounted a full-scale invasion of the Khuzestan Province of Iran, which not only borders Iraq and the *Shatt al-Arab*, but also is immensely oil-rich. Below is a close-up map of Iraq, Kuwait, the *Shatt al-Arab*, and the Khuzestan Province, depicting how this river is Iraq's only outlet to the Persian Gulf.

Figure 28: Map of Khuzestan Province (Global Security 2018)



As seen from the map above, Saddam Hussein's claim of the *Shatt al-Arab* coincides with the oil-rich Khuzestan Province. Conversely, the map below depicts the oil fields in the Khuzestan province; the reader will notice not only how these oil fields are on the border with Iraq, but also how they tend to surround the Persian Gulf. This proximity to the Gulf has led to many border disputes among resource curse states in the oil era (e.g., Qatari-Saudi border scrimmages, Bahraini-Qatari disputes, Iraqi invasion of Kuwait ostensibly due to slant drilling, Iran-Iraq War, etc.). With this proximity to the Gulf also came the so-called Tanker War phase of the Iran-Iraq War in the Strait of Hormuz when Iraq, which will be examined in greater detail later.

Figure 29: Map of Iranian Oil Fields (EIA 2018; Sustainable Race 2018)



As can be seen from the map above, Iran's oil-rich region lies tantalizingly close to Iraq. In the present work's opinion, petroleum played three key roles in the Iran-Iraq War: the price of oil, territorial disputes over the *Shatt al-Arab*, and the Tanker War. We must first begin, as always, with oil prices. For the purposes of testing *Hypothesis 6*, the price of oil is considered an indirect player in the Iran-Iraq War.

Despite their differences, Iran and Iraq found a way to put their differences aside and became two founding members of OPEC. Not only did these embargoes contribute to skyrocketing oil prices in the West, they also decreased a valuable revenue stream for OPEC-member states embargoing their main consumers. After the overthrow of Mosaddegh, the Shah's plan of modernization, though to a degree beneficial for the West,

resulted in the marginalization of the bazaar class of merchants and traders that ended up costing the monarchy valuable support. The Shah's efforts to diversify the economy and loosen Iran's independence upon oil by bolstering agrarian projects continuously fell short (Workman 1991:10). As a result, the Iranian economy, for better or worse, was pinned to the price of oil in the world market—a variable that no single state can control. Thus, at the time, Iran was OPEC's second largest oil producer—after Saudi Arabia—with petro-revenues accounting for 90% of export earnings and 60% of government revenues (Central Bank of Iran 2008). As Farzanegan et al (2008:2) note, under these conditions, any shock to the oil market would send the economy into free-fall, thereby making it appear "that oil price changes highly influence the welfare and subsidization programs of the government" (2008:3). As is common with many petroleum-rich resource curse states, Dutch Disease characterized the Iranian economy throughout the 1970s, leading to growing disenchantment with the Shah regime (e.g., Corden & Neary 1982; Corden 1984; van Wijnbergen 1984), and ultimately contributing to his overthrow in 1979.

Iraq was also impacted by the price of oil throughout the 1970s. By 1972, the same year the US reached peak oil, Baghdad had fully nationalized the Iraq Petroleum Company. It was with this nationalization that Iraq could join in with other OPEC states and successfully embargo the West. Once these revenue streams were secured, oil rents "allowed the political direction of the Ba'ath to proceed according to its own logic, a logic fundamentally guided by the imperative of regime maintenance" (Workman 1991:15). As Workman states, it would be incorrect to argue that petroleum triggered the war; rather petroleum allowed the Ba'athist Party to pursue policies that reduced Iraqi

vulnerabilities against their stronger neighbor. Due to the increase in oil prices throughout the 1970s, the Ba'ath Party, and Saddam Hussein with it, were able to ride the wave of oil money and insulate themselves from Iraqi demographic and social classes (Workman 1991:17). Notably, the Ba'ath Party used its oil money to purchase Kurdish support by providing television sets and cash payouts to those families living on the Iraqi border with Iran (Bengio & Dann 1978-1979:569). These wild maneuvers allowed the Ba'ath Party to stay in power throughout the 1970s, yet it was contingent upon a stable—and ideally—high price of oil.

Despite its tributary access to the Persian Gulf, Iraq has many of the characteristics of a landlocked country. In the 1970s, Iraq had only three outlets[76] through which it could export petroleum, and only one of those outlets involved the sea. This leads us to the next role petroleum played in the Iran-Iraq War—exports via the *Shatt al-Arab* and the subsequent Tanker War that prolonged the conflict. As previously mentioned, this confluence of the Tigris and Euphrates was the only Iraqi outlet to the Persian Gulf, and it had to share it with Iran, leaving Baghdad especially vulnerable regarding it primary export. On the other side of the *Shatt al-Arab* is the Iranian oil-rich province of Khuzestan; however, for Baghdad, the problem was not Khuzestan per se, but rather that Iran controlled half of the river along with Khuzestan. One of the first clashes of the Iran-Iraq War was the Battle of Khorramshahr, in Khuzestan, where, after a lengthy battle, the Iraqi Army managed to overtake the city, along with large swaths of Iranian territory. Yet, as the war dragged into its second and third years, it increasingly took a toll on both states, turning into a war of attrition on both sides (e.g., Hiro &

[76] Other than the *Shatt al-Arab*, Iraq had two pipelines running through Syria and Turkey, some of which were consistently interrupted in the years leading up to the Iran-Iraq War.

Salameh 1984; Workman 1991; Hardy 2005; Karsh 1987). It was during this time the Iranians managed to push the Iraqi army back to their original borders. Once at the Iraqi border, Saddam Hussein offered Tehran a peace agreement, which Khomeini rejected, believing to have the Iraqi army's in his clutches. Therefore, in the words of Roger Hardy (2005), even though Hussein started the war, it was Khomeini who prolonged it. The Iran-Iraq War took another unusual turn when both states began attacking each other's oil shipments.

In an effort to deplete Tehran in this war of attrition, Saddam Hussein decided to attack Iranian oil shipments in the Persian Gulf, leading to a stage of the war commonly dubbed the Tanker War. While increasing its attacks on Iranian petroleum shipments in the Gulf, Hussein also sought to use an Iranian encroachment and conquest to leverage foreign support, especially from Kuwait (Cordesman 1990:1). Foreign support soon waivered when, in 1984, Iraq began, somewhat indiscriminately attacking many different vessels in the Persian Gulf—ranging from two small Indian tankers to a Greek vessel (Cordesman 1990:5). Iraq's timing is also suggestive, as Iran was seeking to renew a deal with Japanese traders for 200,000 barrels of crude oil per day to make up for its financial losses during the war (Cordesman 1990.5). Eventually, vessels from South Korea, West Germany, Burma, Yugoslavia, Spain, Sri Lanka, and even the Bahamas were attacked during the Tanker War, totaling between 340 ships[77] (UN Security Council 1987) to 451 vessels (Washington Post 1987; New York Times 1988). Ultimately, the Tanker War resulted in an extension of the war of attrition between Iran and Iraq, with Hussein

[77] Oddly, 61 vessels registered in Liberia were the most common targets during the Tanker War (UN Security Council 1987). Though these vessels may be flying the Liberian flag, it is uncertain whether or not they were indeed from Liberia or simply registered in Monrovia and transported elsewhere—this dissertation expects the latter.

bombing Iranian oil loading docks so the Iranians could not export their petroleum. Despite these bombing raids, it became apparent that Iraq could not cope with escalation of the Tanker War, as they had no maritime patrol craft (Cordesman 1990:6). The escalation of a formerly land conflict to maritime warfare focused on oil tankers naturally attracted the attention of international actors, especially the United States, who ultimately supplied both sides with weapons.

US response to the Iran-Iraq War has long been the topic of contention. After Eisenhower facilitated the coup ousting Mosaddegh, Washington remained allied with the Shah until the 1979 Revolution. However, soon before the Revolution, it transpired that Mohammad Reza Pahlavi was dying of lymphatic cancer (Rosen 2016). He eventually sought treatment in the United States, and when President Carter refused to return him to Iran, protestors overtook the US Embassy of Tehran and detained over 50 State Department employees for 444 days (US State 2018). This preoccupation with the hostages colored US foreign policy in favor of an invading country—Iraq (Naff 1985:72). US support for Iraq was marked by an unusual initiative, dubbed Project Babylon, which was an effort to build the largest 'supergun' in the world that theoretically could launch projectiles into the stratosphere before having them fall upon an enemy city thousands of miles away (Park 2016). Washington's support for Iraq ultimately wavered, and the supergun project, often nicknamed Project Babylon, was suspended before it was used in warfare. The chief engineer of this supergun, Gerald Bull, was assassinated outside his home in Brussels in 1990, rumored to be the work of Mossad (Toolis 1990). However, once the hostages were freed from Tehran, the Shah had died, Iraq escalated the war, and the supergun project collapsed, Washington's support for Baghdad faltered, with Reagan

eventually selling weapons to Iran despite the US arms embargo against that country, and then using that money to fund rebels in Nicaragua. The ensuing scandal, often called the Iran-Contra Affair, enveloped the Reagan Administration. Yet, it was Kissinger who summarized US government sentiments best during the Iran-Iraq War stating, "too bad they can't both lose" (Chubin & Tripp 1989:207).

The prominence of petroleum for both states not only helped trigger the war, but also elongated and exacerbated the conflict; additionally, with the commencement of the Tanker War, the conflict took on a new dimension. By attacking each other's main exports, the Tanker War became less a mercantilist struggle for territory and more of a resource-based war of economic and military attrition. The Iran-Iraq War stands quite alone for its brutality and futility. After eight years of bloody fighting, and nearly 1.5 million people dead, the war ended with a *status quo ante bellum*. Neither side had achieved any reasonable objective, though, of course, both sides claimed victory. Khomeini could not depose of the strongman in Baghdad, and Hussein neither secured Khuzestan nor Iraq's control over the *Shatt al-Arab*. Often compared to the trench warfare of World War I, the Iran-Iraq War became a classic war of attrition, with soldiers and civilians dying on both sides without meaningful gains by either party. The antiquated tactics of quasi-modern warfare implemented by both parties exacerbated the conflict: similar to World War I, Saddam Hussein used chemical weapons against the Iranians, and eventually against the Kurds in Iraq, whom he considered unfaithful to Baghdad (Hardy 2005). Khomeini meanwhile implemented 'human-wave' tactics that sent thousands of Iranian fighters to their death with little territorial gain to show for the effort (Hardy 2005).

Petroleum lent Saddam Hussein and the Ba'ath Party a certain degree of confidence in the period leading up to the Iran-Iraq War, which eventually incentivized him to take a riskier foreign policy in relation to his larger neighbor once he noticed their weakness. Indirectly, petroleum rents also allowed the Ba'ath Party to dominate politics despite Iraqi demographic and cultural asymmetries. Iran, on the other hand, possessed a more industrialized economy by the commencement of the war, despite suffering from a revolution the prior year. Interestingly enough, petroleum seemed to play a different role for Iran than Iraq: whereas petroleum in Iraq allowed Hussein to take a more adventurous foreign policy, the Shah was attempted to diversify the Iranian economy *off* of petroleum roughly throughout the same period. Nonetheless, since the dispute over the *Shatt al-Arab*, petroleum acted as a catalyst for what would become a territorial conflict masked as a cultural war. The Tanker War phase of the Iran-Iraq War further worked to protract the conflict and garner more international attention, not over carnage or body counts, though those shot up into the millions, but over oil prices and the world economy.

Ultimately, the evidence found in this dissertation largely, but not completely, supports *Hypothesis 6*. First, the bar graph in *Figure 27* depicts how international violence has only influenced petroleum-rich states, as no diamond states have suffered from foreign attacks. However, when analyzing the same graph, we note that both diamond- and petroleum-rich states suffer from civil violence at more or less the same rates. This casts some doubts over the latter half of *Hypothesis 6*. Nonetheless, this work found a strong, positive and statistically significant correlation ($p < 0.05$) between the degree of civil violence and the value of diamonds produced in resource curse states. On the other hand, there was no such correlation regarding petroleum states. In order to

account for this discrepancy, this dissertation conducted a study of the Iran-Iraq War. This qualitative study found that not only did petroleum play an indirect role in triggering the conflict—it also helped protract the war when the conflict turned to the sea. More subtly, petroleum allowed both states to wage a war of attrition against each other, as both Iran and Iraq were capable of exporting petroleum and leveraging these funds to wage war. These qualitative findings support the first half of *Hypothesis 6*, suggesting that petroleum leads to increased international violence among resource curse states.

Chapter 7

POLICY RECOMMENDATIONS & CONCLUSION

There is a gap in resource curse literature. Too often, curses are treated as single, multi-pronged monoliths affecting resource-rich states. This dissertation puts forward the *theory of resource curses*—states with different resources tend to suffer from fundamentally different curses. To support the *theory of resource curses*, this dissertation advances six hypotheses distinguishing diamond- from petroleum-rich states. These hypotheses were purposefully picked to illustrate how these resources incentivize and create pathways for states, ultimately leading them to suffer from different curses. The *theory of resource curses* expects three different curses to develop out of these states: economic, political, and violent. As this work is not an economic-based dissertation, economic hypotheses were put forward, but not tested. Conversely, this work tested processes and outcomes congruent with political and violent resource curses, with results supporting most hypotheses. Below is a chart illustrating to what extent the results support the hypotheses in this dissertation.

Table 14: Dissertation Hypotheses Results

HYPOTHESIS	METHODS	RESULTS
1) Government-MNC strife	Qualitative	Supported
2) Strength of Resource Class	Quantitative	Supported
3) Nationalization Coefficients	Quantitative	Supported
4) Property Rights Enforcement	Quantitative	Not Supported
5) Rebel Capture of Resource	Qualitative	Supported
6) Civil v. International Violence	Mixed-Methods	Partially Supported

As seen from the table above, most of the hypotheses postulated in this dissertation were supported. Only *Hypothesis 4*, which measures property rights

enforcement, was left unsupported. *Hypothesis 6* was partially supported through a mixed-methods approach, yet its results are not as conclusive as the other supported hypotheses. Below is a summary of the findings of this dissertation, along with some policy recommendations.

This dissertation understands that enough political problems will result in economic dysfunction, and that downturns in the local economy may lead to violence. Systemic violence may, in turn, lead to political issues, and so forth. Therefore, in order to disaggregate economic, political, and violent issues from each other, this dissertation sought to pinpoint certain processes and outcomes that are largely ensconced in one type of phenomenon. First among the political resource curses is governmental-MNC strife. At its initial stage, this strife has yet to become an economic (or violent) curse, hence why it is dubbed a political resource curse. *Hypothesis 1* seeks to understand the differences between diamond- and petroleum-rich resource curse states *vis-à-vis* the relationship between the government and multinational corporations, finding eight dimensions by which this relationship is different contingent upon the resource in question. The qualitative analysis depicts how Venezuela, a petro-rich state suffers from consistent and incremental government-MNC strife, is economically dependent upon their resource, and experiences an internationalization and inter-sectionalization of its strife. Additionally, since petroleum is capital-intensive, strife is contingent upon the price of petroleum in the world market and not domestic labor forces. MNCs additionally enjoy a strong international legal backing when combatting the Venezuelan government. Conversely, in Tanzania, a diamond-state, strife was localized, intermittent, labor-focused, sudden, and contained to the extraction industry. Moreover, Tanzania is not

dependent upon diamonds for revenue purposes, and therefore strife is independent from the price of diamonds in the world market. Furthermore, unlike in the petroleum industry, foreign diamond companies in Tanzania have not (yet) sought international legal backing for the expropriation of their resources. While at the initial stages of resource-related strife, the differences between Venezuela and Tanzania were not that apparent, the repeated iterations of decades of a certain type of strife between the Venezuelan government and IOCs—and the lack thereof in Tanzania—resulted in different outcomes between both states.

The second political resource curse hypothesis quantitatively tests the strength of the resource class in diamond- and petroleum-rich states, seeking statistically significant differences between states possessing these resources. Inspired by the work of Hartmann et al's (2015:9) Product Gini Index (PGI), *Hypothesis 2* sought to test how different resources may lead to inequality among classes, developing the term 'resource class.' This dissertation found that petroleum leads to a stronger (read: wealthier) resource class than diamonds among resource curse states. Not only was there significant clustering among both groups of states, this work noticed a positive correlation between petroleum and a wealthier resource class among oil states and the opposite phenomenon among diamond states. When looking only at Russia, *Hypothesis 2*'s findings illustrate that over the years when there is available data, petroleum led to an increase in the wealth of the top 1% and 10% of Russians while diamonds had the opposite effect. However, when assessing *only* years for which scholars have available data on both oil and diamonds, the regression lines point in the same direction, suggesting that variables other than resources are at play in determining Russian resource class strengths. Despite this anomaly, the

results largely support *Hypothesis 2*'s expectations, with petroleum extraction leading to a stronger resource class than diamond production.

Hypothesis 3 turns to another facet of governmental policy—the nationalization of the resource industry. This work remains agnostic on whether or not a nationalized extraction industry is beneficial for the state; rather it is more interested in discovering if resources play a role in incentivizing states to nationalize their industries. Testing this hypothesis finds that petroleum-rich resource curse states are more likely to nationalize their oil industries than diamond-rich states, with every single oil state possessing a nationalized industry. On the other hand, only six out of the thirteen diamond states possess a nationalized industry, with some, such as STAMICO in Tanzania, owning a nationalized *mining* industry, extracting not only diamonds, but also gold and coal. *Hypothesis 3* also sought to establish if nationalized industries in resource curse states tend to be more powerful in oil states than in diamond states, finding congruent correlations through *t*-tests and scatterplots. Nationalized industries do not automatically spell out a resource curse; there are many nationalized oil companies benefiting the host state (e.g., Equinor in Norway). However, for every beneficial nationalized industry, this work can point to some deleterious nationalized industries, such as PDVSA in Venezuela. Key to the results of *Hypothesis 3* is that while petroleum states may opt to nationalize their industry, diamond states tend to liberalize their mining industries. Whereas, at the point of nationalization, petroleum states have the option to turn their extraction industry into a Equinor or a PDVSA, diamond states have no such luxury.

The only postulation forwarded by this dissertation that was left unsupported by results was *Hypothesis 4*, considering petroleum states to enjoy stronger property rights

enforcements than diamond states. The scatterplots mapping out property rights enforcements among diamond and petroleum states find suggestive results: the more petroleum states possess, the *stronger* their property enforcement becomes while the more diamond-rich a state is the *weaker* their property rights scores become. The present work additionally found similar results regarding total economic freedom scores, accounting for previous colonial power's scores. Furthermore, when conducting *t*-tests measuring differences among the means between diamond and oil states, this work found statistically significant results among both groups, further suggesting a fundamental difference in property rights enforcement between diamond- and petroleum-rich resource curse states. However, when conducting multivariate regressions between property rights scores and the per capita values of states' resources, this work found statistically significant results not only with the per capita value of the resource, but also between GDP per capita, population, and total area of the state. These finding suggest that while petroleum-rich states may enjoy stronger property rights enforcements than their diamond counterparts, they do not do so *because* of their petroleum. While there may be a correlation between property rights enforcements and resources, the current work cannot show any causation between the two variables.

Two hypotheses tested how different types of violence affect diamond- and petroleum-rich resource curse states. *Hypothesis 5* follows in the footsteps of Lujala (2010), who noticed increases in violence in resource curse states even though resources may not have been extracted. Simply having the resources in the ground proved to be strong enough to trigger violent reactions. To some extent, *Hypothesis 5* tests this rebel greed hypothesis, predicting that they will seek out diamond mines over oil fields despite

petroleum's comparatively larger revenue stream. All three cases analyzed in this hypothesis occurred at roughly the same time, all were grievance-based civil wars, in all cases war broke out for reasons other than resources, and in all cases resources were involved in protracting the war. The qualitative analysis points to how rebels in Sierra Leone captured (not sabotage) diamond mines, organized themselves to maintain control over these mines, and funded their activities through diamond smuggling. In Algeria, the opposite phenomena occurred: rebels did not take over (or protect) oil fields, and sabotaged pipelines despite the fact that petroleum was used to fund governmental activities against rebels. Angola, with both petroleum and diamonds, suffered from both plagues in different parts of the country.

Unlike *Hypothesis 5*, which largely measures civil violence, *Hypothesis 6* is more interested in whether or not resources play a role in determining the type of violence resource curse states experience. The bar chart finds a partial correlation between international and civil violence, depicting civil violence as steady among most resource curse states, while international violence is endemic only to petroleum states. The subsequent bivariate regressions illustrate positive and statistically significant results ($p < 0.05$) for diamond production and civil and international violence. This is the peculiar curse diamond states must suffer: their resource is valuable enough to incentivize rebels to take up arms against the government, but not valuable enough to raise their population out of poverty. While there were statistically significant results among diamond states, due to the relative peace in many high-powered oil rich states (Saudi Arabia, Qatar, Venezuela, Mexico, etc.), there were no statistically significant results correlating petroleum production with either civil or international violence. In order to address this

issue, this work conducted a qualitative assessment of the Iran-Iraq War finding that oil rents allowed Saddam Hussein to take riskier chances in foreign policy and lent the Ba'ath Party the opportunity to crystalize an otherwise demographically heterogeneous country. In this sense, oil helped shape Iraqi institutions, bestowing upon Saddam Hussein a disproportionate amount of power and confidence in foreign affairs. As the *Shatt al-Arab* was Iraq's only outlet to the Persian Gulf, Hussein considered this estuary Iraq's Achilles Heel, incentivizing him to invade Iran's oil-rich Khuzestan Province right after the Shah was deposed. Due to Iran's petroleum-based economy, this province offered not only an historic value, but also was an economic powerhouse for Tehran. Petroleum then led to the prolongation of the war when both sides began attacking each other's tankers, taking this war of attrition to the sea and lending an economic component to the struggle. Ultimately, support for *Hypothesis 6* was found through mixed methods. Quantitatively, an increase in the production of diamonds has a statistically significant positive effect on civil violence; however, this was not the case for petroleum production. When analyzing the Iran-Iraq War, two oil states fighting each other, we qualitatively observe how petroleum helped spark, fund, and prolong the war.

If there is any room for the advancement of academic knowledge in resource curse literature, this dissertation considers it to be located in Lujala's (2010) findings that conflicts increase irrespective of whether or not resources are extracted. Simply knowing that resources are below one's feet is enough to incite violence among groups. A psychological assessment of how resources influence the Weberian (1992:33) conception

of *auri sacra fames*, the accursed lust for gold,[78] may pinpoint internal decision-making process among leaders and states. This phenomenon is nothing new; as the title of this dissertation suggests, a certain psychological reckoning occurs within those who potentially benefit from resource extraction. And sometimes, as the mythical King Midas discovered, such *auri sacra fames* may lead to one's demise. The resource curse has been analyzed from many angles, but in this work's humble opinion, a valuable and interdisciplinary path for future study would include a psychological assessment of the resource curse.

Policy Recommendations

This dissertation has some policy recommendations for resource curse states stemming from each hypothesis tested. The table below summarizes these recommendations. Predictably, and given the tone of this dissertation, they are separated into two categories, contingent upon the resource in question. It should be noted that these policy recommendations are general guidelines based on the hypotheses that were tested. While these guidelines may broadly apply to diamond- or petroleum-rich resource curse states as a whole, they are not meant for any single resource curse state. Policy recommendations for each of the thirty-five states in this analysis ought to be tailored individually though they may be based off those below. Naturally, these recommendations are especially suited for Angola and Russia, as they possess both diamonds and petroleum. The policy recommendations do not perfectly correlate to each

[78] To be sure, Weber was not subtle about his feelings toward greed, considering the *auri sacra fames* to be a vestige of the pre-capitalist individual (1992:33) and a perverse instinct leading to idleness and a quasi-hedonistic enjoyment of life (1992:108).

hypothesis, as some hypotheses deserve multiple suggestions and sometimes these recommendations transcend one single hypothesis.

Table 15: Resource Curse Policy Recommendations

DIAMOND STATES	PETROLEUM STATES
1) Curb sudden and total expropriation of diamonds from multinational corporations.	1) Halt retroactive laws and sudden tax increases on international oil companies.
2) Develop court system for diamond-based grievances that may be solved internally.	2) Seek consistency and inclusivity in lawmaking to encourage future development and investment.
3) Strengthen oversight and partnerships with diamond companies at mines (not airports).	3) Do not repay debts with petroleum (or any other commodity).
4) Create linkages in economy between diamond producers, polishers, and jewelers.	4) Use oil rents to diversify the economy and energy sources.
5) Given the low production value of diamonds, do not nationalize industry.	5) Support decentralization of petroleum rents to provincial and local governments.
6) Redirect taxes to support artisanal diamond mining for low-income communities.	6) Ensure that private property rights permeate into other areas of the economy.
7) Strengthen private property laws for artisanal diamond mining, following PRAAD II.	7) Begin bilateral trade with other petro-states, sharing technology, information, etc.
8) Strengthen security around diamond mines before they fall into rebel hands.	8) Clearly delineate borders, especially in the Persian Gulf region.

Judging from the results found in *Hypothesis 1*, diamond-rich states may be more tempted to suddenly expropriate resources from MNCs than petroleum states. Tanzania, for example, expropriated 71 thousand carats—weighing slightly over 30 pounds—from Petra Diamonds. This shows that diamonds' lootability travels both ways; not only can rebels snatch diamonds, so can the government. Naturally, these policy recommendations are for governments, and start with the most obvious: governments should curb Tanzania-esque sudden expropriations of resources, as such practices will likely result in less foreign direct investment and economic development. The first suggestion is tied to the second: diamond-rich states should solve these sorts of issues internally via a stronger court system. Diamond states, such as Guyana, Cameroon, and Zimbabwe are notorious for suffering from weak court systems, where officials expect gifts in return for judicial favoritism. Developing strong, domestically-backed court systems for resource-related grievances would help not only limit government-MNC strife, but also lend legitimacy to

the resource-rich state. The third policy recommendation for diamond states stemming from *Hypothesis 1* suggests strengthening oversight and partnerships with diamond companies on location, rather than at airports where resources are ready to be exported. Not only do sudden expropriation of diamonds at airports raise eyebrows, they are ineffective in solving the root of the problem. Additionally, working with diamond extraction MNCs on-site would allow for exchanges of knowledge and working understandings between private and public industries to alleviate unnecessary government-MNC strife.

Despite the lootability of diamonds, they are not always smuggled out of states. Every state subscribing to the Kimberley Process reports licit diamond production and exports. Yet there is a link missing within this plan: the diamonds are cut and polished in other states. Perhaps for good reason, governments and multinational diamond corporations are hesitant to allow diamonds to pass through too many hands before they are sold to jewelers due to diamonds' infamous lootability. Yet, with enough controls, diamond states could begin cutting, polishing, and fitting diamonds at home, and then exporting the finished product abroad. This would create necessary linkages within the domestic economy that are still resource-based but also labor-intensive and skilled. Investing in economic linkages such as these would allow diamond states to improve their economic development at home while taking fuller advantage of the resources they possess. Potential plans could include nudges from diamond-rich governments to entice diamond companies to create polishing stations at home. Naturally, this would involve delicate foreign policies toward states, such as Belgium, Hong Kong, Singapore, and most notably, India, which have advanced diamond-polishing centers. Notably, the town

of Surat,[79] India, about 250 km north of Mumbai in the Gujarat State, is known as 'Diamond City,' for its diamond polishing centers consisting of over 100,000 units and employing over 700,000 people (Gaitonde 2013). Smaller diamond states cannot hope to compete with Surat, but they may be able to increase economic development at home by subsidizing infrastructure for diamond polishing programs or facilitate training for local workers.

Given the results of *Hypothesis 3*, nationalizing only a diamond industry does not seem worth the effort, as rents are not significant enough to meaningfully shape domestic policy. Results may be different if states nationalize the entire mining industry to include copper, gold, and coal. However, those resources are outside of the focus of this work. Rather, what states ought to do is encourage artisanal diamond mining (ADM) by using revenue from diamonds to provide for training and simple tools for would-be miners. ADM is labor-intensive work that potentially aids employment and modernizes low-income communities previously marginalized from the diamond extraction process. Related to this policy recommendation is to strengthen private property rights, especially regarding ADM and the extraction industry. As *Hypothesis 4* shows, private property enforcement in diamond states is considerably weaker than in petroleum states (and the rest of the world). Strengthening property rights enforcements, especially by following the guidelines set in PRAAD and PRAAD II, may help incentivize ADM in diamond states, while potentially causing a spillover effect into other industries. In this sense, by

[79] According to Aruna Gaitonde (2013), Gujarat alone "houses 80% of all the processing of diamonds produced in the country, with a concentration of 90% in diamond cutting companies in the single city of Surat."

strengthening extraction-related property rights, other industries, such as agriculture and manufacturing, may find indirect benefits in their sectors.

The last policy recommendation is supported by the results of *Hypothesis 5*, and to a lesser extent, *Hypothesis 6*. If diamond states have an Achilles Heel, it is their diamond mines. Due to their relative concentration and lootability of the resources found there, diamond mines attract rebels like lightning rods attract electricity. To prevent unnecessary civil violence and preemptively halt any funding stream for rebels, it is in the government's best interest to secure diamond mines themselves or legislate that MNCs provide enough security for their mining projects. Since the Sierra Leonean Civil War and the ensuing UN-backed group securing diamond mines, this has largely been the case. However, instances such as the UN peacekeeping force, UNAMSIL's, struggle in removing the RUF from diamond mines (Gberie 2002:4), cast doubt on how forceful government involvements can be in diamond mines. This last suggestion for diamond states is a preemptive one to avoid states falling into the trap Sierra Leone did during its civil war.

Given the results of this dissertation, petroleum states have distinctly different policy recommendations than diamond states. First and foremost, since petro-states seem to suffer from economic and political resource curses, government relations with MNCs are extremely valuable in securing investments necessary for economic development. While petroleum rents are enticing for governments, sudden tax hikes and retroactive legislation creates an unfriendly environment for IOCs, thereby limiting future economic development and simultaneously incentivizing cheating among IOCs. By seeking consistency and inclusivity in lawmaking, petroleum-rich states may better attract and

retain IOCs while simultaneously generating rents, despite fluctuations in oil prices. Barma et al (2012:11) reach a similar conclusion, considering the credibility of intertemporal agreements to be key in hindering IOCs obsolescent bargains with governments. Furthermore, by allowing IOCs a voice in the decision-making process, petroleum-rich states may stave off strife in a transparent manner. Given the disturbing results from the qualitative analysis of *Hypothesis 1*, this dissertation considers repaying debt with petroleum to be sub-optimal at best. Selling a commodity whose price is consistently changing to repay foreign debt is simply unwise, especially if petro-states follow in Venezuela's footsteps and repay debt with poorer quality petroleum than what was previously agreed.

The fourth policy recommendation this work promotes is nothing new to resource curse literature, but seems to be the most difficult to pass through political and economic filters—diversify the national economy by using oil rents to support other industries. Purposeful diversification can help alleviate Dutch Disease and spur economic development in the agricultural and manufacturing sectors. This allows states to have a buffer should oil prices drop. Notice a subtle distinction in this policy recommendation—it suggests oil rents be used in other *industries*, not social service programs, as in Venezuela. Investing in social services may help certain groups for a time, but they do not create meaningful employment for people. More importantly, these types of investments help populations only if oil prices remain high *and* the government does not run out of petroleum; yet the fact remains that prices fluctuate and oil is a finite resource.

Since every petroleum-rich resource curse state in this dataset has a nationalized oil industry, the next policy recommendation assumes the existence of a national oil

company. Rents generated from petroleum ought to be decentralized and split between the national, provincial, and local governments. This policy recommendation solves two problems. First, it would stop the NOC from acting as a potentially unscrupulous arm of the government as petroleum rents would be sent to more than one party. By dividing rents, governments can use this revenue in different manners, thereby creating a diversification of programs and projects. Second, by allowing provincial and local governments a 'piece of the pie,' states may stave off criticisms from local communities that the resource extracted from their properties benefits some far-away capital. This is especially true in Cabinda, Angola's oil-rich enclave, which remains one of the poorest provinces in Angola.

Hypothesis 4 noted how oil states tend to enjoy better property rights than diamond states. One of the surest ways to safeguard against weakening property rights enforcements is to encourage the spillover effect from the extraction industry. By regulating property rights, petroleum states can not only guarantee foreign investments will not be expropriated, they can create a modus operandi for the enforcement of property rights in other industries.

As *Hypothesis 6* suggests, petroleum-rich resource curse states were the only ones to experience international violence. Hedging against foreign invasions is difficult and risky work. However, when looking at the economic and industrial unions in post-WWII Europe, such as the European Coal and Steel Community—the precursor to what would become the European Union—analysts note that combining and sharing industry knowledge and experience may halt aggressive advances by foreign powers. By sharing petroleum engineering resources, information, knowledge, and even labor, oil-rich states

may hedge against possible invasions by regional troublemakers, especially in the Middle East.

The final policy recommendation for oil states refers to their borders. Sovereignty issues are taken very seriously in international courts, but petroleum-rich states may guard against border disputes by preemptively seeking resolutions before conflicts arise. Border scrimmages are alarmingly frequent in the Middle East, with the most notable cases being the *Shatt al-Arab* and Saddam Hussein's invasion of Kuwait. However, a border conflict between Saudi Arabia and Qatar from 1992 to 1994 in the al-Hasa Province left two Qatari soldiers dead and created a tense environment between the two states (Powers 2009:97). Doha accused Riyadh of attempting to annex a southern part of its territory, marking the inception of a long train of future disputes between both states. Border disputes in the following years eventually resulted in Qatar boycotting the Gulf Cooperation Council (GCC) in 1994.[80] As previously noted, Bahrain and Qatar also had a border dispute, which was solved with a literal bridge between the two states. While it is understood that borders in the Persian Gulf were left ambiguous and unguarded before the oil era, demarcating frontiers and settling disputes preemptively ought to guard against regional strongmen seeking more territory while claiming historical ties to the region *à la* Hussein.

Most resource curse literature seeks to determine whether or not states experience a curse because of the resources they possess. This dissertation has largely stayed away from such ontological questions, instead focusing on how different resources may

[80] According to some scholars, the relationship between the states in the GCC is that of Saudi Arabia as the master, and the other emirates as its vassals (da Lage 2005; Cordesman 1997).

contribute to different curses. By testing pathways and outcomes stemming from resources before causal arrows flow in every direction, this work seeks to establish the *theory of resource curses* as a viable avenue for future study and scholarship. Instead of adopting a multi-pronged approach to resource curse outcomes, this *theory* considers diamond- and petroleum-rich states to experience fundamentally different curses contingent upon their resource. Finally, by offering policy recommendations, this work seeks to offer a way out of the resource curse for states susceptible to these types of economic, political, and violent plagues.

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Appendices

Appendix A (Testing *Hypothesis 2*)

The data and methods presented in *Appendix 1* contains valuable information regarding the collection of information for *Hypothesis 2*, which analyzes the strength of the resource class in diamond- and petroleum-rich states. In obtaining the data to test this hypothesis, this work used the CIA World Factbook for country populations (CIA World Factbook), the *Qualities of Governance* dataset that incorporated Ross and Mahdavy's (2015) information on the value of oil production per state in 2014 dollars (Teorell et al 2017; Ross 2015). To determine the values of diamond production, this dissertation reviewed the Kimberley Process Annual Global Summary, tabulating diamond production, exports, and imports by carats and value (Kimberley Process 2015). World Bank data is useful for determining the Gini coefficient of many states, though oftentimes, the scores are relatively dated (i.e., before the 2008 financial market downturn). For example, the World Bank offers Gini coefficients for Liberia from 2007, Venezuela from 2006, Gabon and Ghana from 2005, and Tanzania from 2000. Additionally, the CIA World Factbook displays Gini coefficients from Algeria in 1995, Cameroon in 2001, Guyana in 2007, and Zimbabwe in 2006. Yet even between the CIA World Factbook and the World Bank, the data is still incomplete. IndexMundi exhibits Syria's Gini coefficient from 2004, citing the World Bank (IndexMundi 2017). Furthermore, and most frustrating, is that the Gini coefficients for many Gulf states are

different for citizens than for the masses of low-wage immigrant workers they receive from Bangladesh, Pakistan, and India. For these states, this dissertation delved into estimates by other scholars. Information on Kuwait is found at El-Katiri et al (2011); data on Bahrain, Oman, and UAE is available at Figini & Holger (2006:20). Obtaining Gini coefficients on Libya is even older and sketchier, but found in Askari et al (1982:211). Equatorial Guinea's Gini coefficient shows up in Dahl (2015:567). Brayne (2014:18) has data on Brunei's Gini coefficient.

An integral assumption in denoting Gini coefficients for resource curse states in the post-Cold War period is that Gini coefficients are slow moving and do not drastically change from year to year. Due to this, this work is comfortable using slightly dated information, especially from a reputable source, such as the World Bank. Additionally, because of the relatively sparse dataset, different sources were used to conduct this research. The CIA World Factbook again proves useful in this endeavor, providing Gini coefficients along with the date of inspection. Additionally, because measures, such as Gini coefficients, are so popular, this dissertation trusts that the World Bank and the CIA are using similar methodologies. Along this vein, the World Bank seems to possess more recent information while the CIA dataset is more complete, yet dated.

For the time series analysis, annual population data was taken from the World Bank. Only tiny Kuwait has three years missing from 1992 to 1995, right after the Iraqi invasion. In this case, this dissertation calculated the geometric mean between the years and plugged them into the missing cells. Oil production data was taken from Ross and Mahdavy (2015), who masterfully created a dataset of all oil and gas production, separated by state and year. They use many different determinants, but for the purposes

of this dissertation, the key variable is (oil_value_2014), which measures the annual value of oil production per state in constant 2014 US dollars. Naturally, Ross and Mahdavy (2015) do not have data on the years 2016 or 2017. While many scholars may not find this too troubling, the price of all energy commodities, such as oil, gas, and coal, have dropped in value by about half since 2014. This not only coincided with the latter part of the Arab Spring, which affects many states in this analysis, it also has sent other petro-state economies in a downward spiral (e.g., Venezuela). With 96% of their exports stemming from petroleum, a halving of their main revenue source has left the Venezuelan economy in shambles, combined and perhaps correlated with an increasingly autocratic leader. Amazingly enough, while Ross and Mahdavy (2015) disaggregated petroleum production by state and by year, they have no data on the world level, so this work added all of the state's oil production together to obtain a world petroleum production number necessary for measuring RCA_{cp} values in *Hypothesis 2*.

Ross and Mahdavy (2015) use constant 2014 dollars in their dataset, so for continuity's sake, this dissertation will use a similar measure for calculating state GDPs. The nearest estimate comes from the World Bank, which measures GDP in terms of purchasing power parity (PPP) in constant US dollars without "making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources" (World Bank 2017).[81] There exists another measure that makes these deductions for the

[81] The full description of this variable reads, "GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 U.S. dollars. Dollar figures for GDP are converted from domestic currencies using 2010 official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to

depletion of natural resources. However, the World Bank dataset for these states begins in 1990 and there are many years missing for states such as Brunei, Kuwait, and UAE. Yet even with using the most complete data, there are still plenty of years unaccounted for in the 1980s (e.g., Gulf States, Libya, etc.). Still, as it's the most complete information available, and measured in similar dollars as Ross and Mahdavy's (2015) dataset, then it becomes the most convenient data for these purposes. For these missing years—and this will be important later—this work took the difference between the last two years of data, and subtracted that number for every previous year.[82] The assumption is that GDP growth is more or less linear. Naturally, this is not the case. However, as this dissertation needs complete data for the equations in *Hypothesis 2* to be relevant, it is somewhat comfortable with such extrapolation, cognizant of reality's complexity. The original dataset would have 1370 observations, but due to incomplete data, there are only 930 total observations, with most of the missing data coming from diamond states.

In the oil realm, an interesting development occurred. For some states, the value of oil produced was more than the state's GDP. For Libya (1980, 1981, 1982, 2012, and 2013), Qatar (1980-1985), Iraq (1980), Kuwait (1980), and Saudi Arabia (1980), oil production exceeded state GDP. For other states like Angola (2012), Libya (1983), Oman (1980), and Saudi Arabia (1981), the percentage of oil production exceeded 90% of the

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actual foreign exchange transactions, an alternative conversion factor is used" (World Bank 2017).

[82] For example, let's imagine that Saudi Arabia's GDP in 1985 was $10 million and $11 million in 1986. This work took the difference between the two years ($1 million), and subtracted that from 1985, leaving Saudi Arabia with $9 million in 1984, $8 million in 1983, and so on.

state GDP, which also seems suspicious. To be sure, all of these datapoints will be eliminated from the regression analyses, but it is important to clarify these discrepancies.

There are a number of reasons why this may have occurred. The original suspicion was that the World Bank data was measured in nominal dollars rather than current US dollars, but according to their description, that was not the case. Additionally, if it were the case, we would observe a discrepancy between years in the 1980s, and not Libya in 2013 or Angola in 2012. Naturally, the fact that many of these discrepancies show up in the early 1980s is still suggestive, but there is another reason for that, which we will explore in a bit. Other possibilities could be ruled out, such as FDI not being taken into account for petroleum extraction, as many of these states have largely nationalized their petro-industries. Furthermore, one dataset is set in 2014 dollars while the other is in 2010 dollars, but the US dollar did not inflate much during those four years. Another cause of the discrepancy is that some states, namely the Gulf states, had incomplete GDP data, so in extrapolating their GDP by implementing an admittedly rudimentary and ham-fisted approach, their information was skewed. Yet, that still does not explain more recent discrepancies or states outside of the Gulf, even if complete data were available.

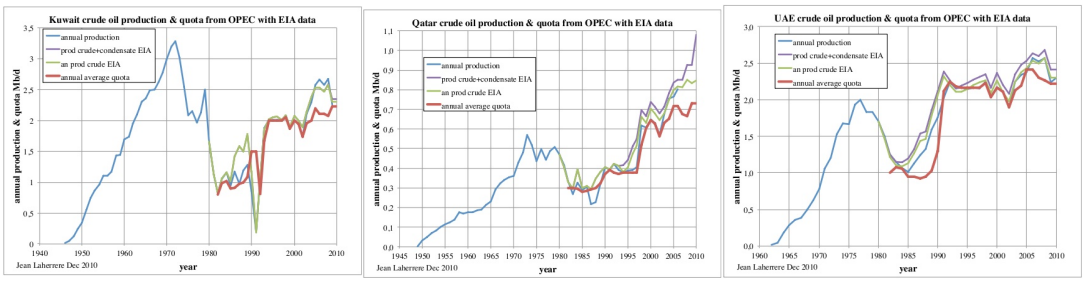
The World Bank dataset that accounts for GDP in terms of PPP while taking account resource depletion ought to explain the discrepancy, especially since their numbers for a state's GDP are higher than the ones used in this analysis. The problem still remains that their dataset begins in 1990 and there is missing information for many resource curse states. Another plausible possibility explaining the discrepancy is debt. If petroleum-rich states are borrowing money at rates close to their GDPs, their resulting

GDP would be significantly lower than the total production of the state due to high rates of borrowing. There is another possibility explaining the discrepancy in the data.

First, this work hesitates to conclude that either the World Bank or Ross and Mahdavy (2015) are simply wrong, though it is more tempted to believe that states may lie about their petro-production. If this is the case, then we have nothing to work with. However, we may take state data at face value, while assuming that there may be a lag in reporting their data. This would explain why the value of oil production exceeded GDP during tumultuous years, especially with the inflated oil prices in Angola and Libya in 2012 and 2013, respectively. As was previously suggested, inflated prices corresponded with huge crashes in commodity prices in 2014. If there were a lag in reporting, this would appear in the analysis. Aside from these two relatively recent cases in Angola and Libya, there are a few years in the 1980s where oil production and GDP do not match, and below is the second part that may explain this discrepancy.

While less known than its predecessor in 1973, the Oil Embargo of 1979 hit Western and Arab OPEC states very hard, in both consumption and production capacities, respectively. Below are three charts depicting production in terms of barrels per day from Kuwait, Qatar, and United Arab Emirates. As can be seen from the petroleum output of these three Gulf states below, there was a sudden drop in production during the early 1980s as part of the Oil Embargo in the previous year, leaving these states with comparably less petroleum revenue.

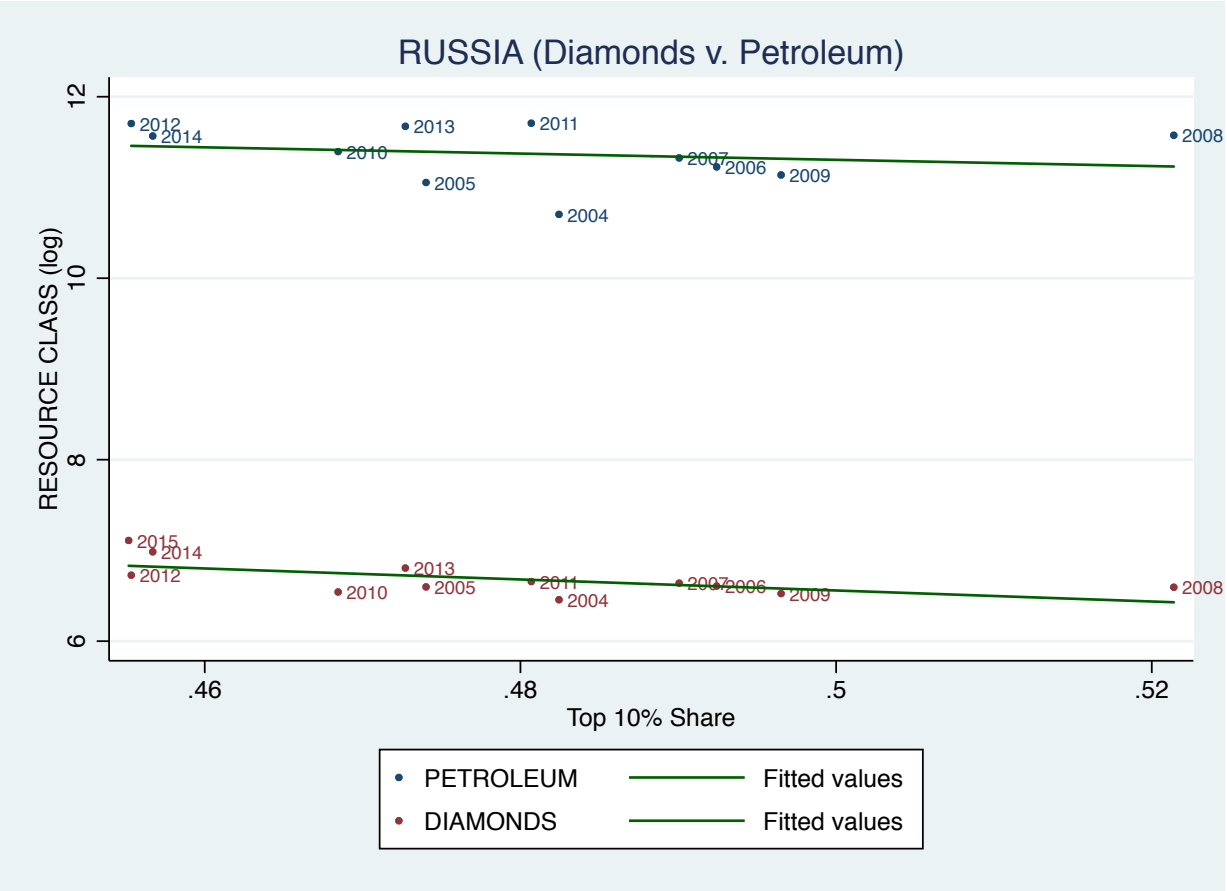
Figure A.1: Oil production in Kuwait, Qatar, and UAE (Laherrère 2010)



For the purposes of testing *Hypothesis 2*, this work will understand there to be a potential lag in reporting petro-revenues, very possibly even due to fiscal years not aligning perfectly with calendar years. If there were a lag in reporting these statistics, it would make sense for the discrepancies found in the early 1980s, as they would essentially follow the same rules as the Angolan (2012) and Libyan (2013) cases. In any case, and while it is not ideal, if lag time is the issue, then it could be a systemic problem. Furthermore, there is a great possibility that debt is counted in GDP in terms of PPP, indicating lower GDP scores than those that do not account for public debt.

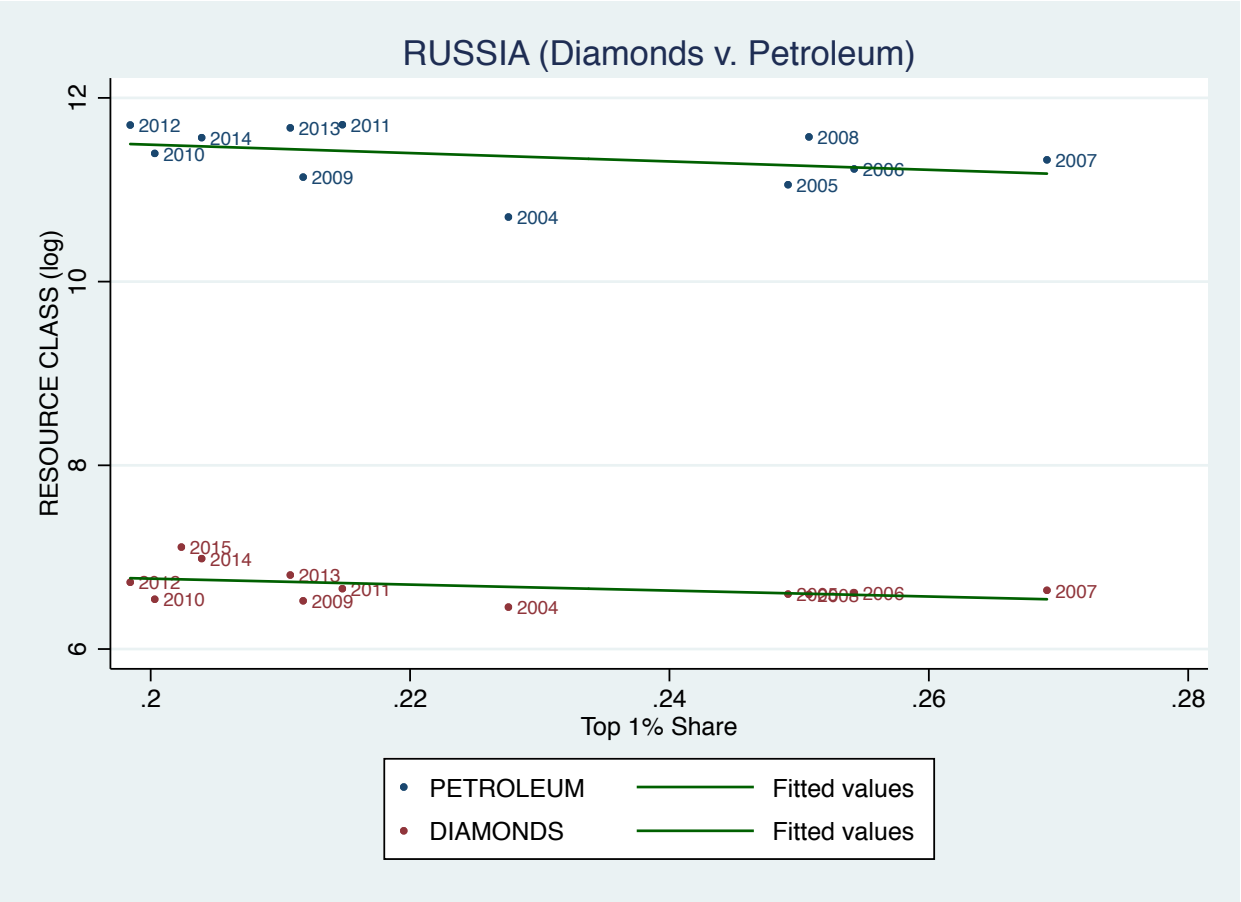
As mentioned in testing *Hypothesis 2*, there is an anomaly in analyzing Russian resource class strength from 2004 to 2014. Though this hypothesis predicts that states with diamonds and petroleum would experience different strengths in their resource classes, this was not the case in Russia from 2004 to 2014. It is important to note that this anomaly is only accounted for when taking the logged values of the resource class.

Figure A.2: Russia (Diamonds v. Petroleum) Top 10% Share (2004-2014)



For the scatterplot above, it is important to notice not only the similar slopes, but also how the years move around the plots, despite this being the same country. Notice especially how 2008, the year the Great Recession began, remains an outlier at the far right of the scatterplot for the top 10% share among both diamond and petroleum classes. The following year, 2009, is also further to the right than every other year. Below there is a similar scatterplot depicting the relationship between the resource class and the top 1% of shareholders in Russia.

Figure A.3: Russia (Diamonds v. Petroleum) Top 1% Share (2004-2014)



As the reader will note, these two scatterplots are very similar. There is an important distinction, outside of the slopes depicted in these scatterplots. Despite taking the log of the resource class for Russian shareholders in the top 10% and 1% of society, the petroleum resource class is consistently stronger than the diamond resource class.

Appendix B (Testing *Hypothesis 3*)

Testing *Hypothesis 3* requires collecting data from many sources on nationalized industries in diamond- and petroleum-rich resource curse states. The data must then be synthesized into readable and testable formats. Below is the list of all of the collected

data for each industry, categorized in alphabetical order, first for petroleum states, and second for diamond states.

Petroleum States

Algeria's nationalized oil company, Sonatrach, produces 67 million metric tons of petroleum, which is around 478 million barrels[83] per year (Chikhi 2016). This figure will be compared with the total Algerian petroleum production, taken from OPEC (2018) statistical data available on their website.

Angola's NOC, Sonangol, offers a chart describing their 2016 real oil production (Sonangol 2017). Their total production hovered at 1.7 million barrels per day (b/d) in 2016 (Prensa Latina 2016). Sonangol also offers an interesting case because it produces more petroleum than Angola's total output. According to their website, Sonangol is the exclusive oil lease grantor in Angola and as "part of its worldwide expansion strategy, Sonangol has an oil exploration partnership in the Republic of Gabon Kiarsseny Marin block - an area of about 5,442 km^2. For this venture Sonangol is a shareholder with 10% of the profits" (Sonangol 2018). Consequently, the ratio between Sonangol and Angola is 1.00125, meaning that Sonangol produces slightly more petroleum than its host state, though this would attribute part this ratio to round-off error, as it is often difficult to pinpoint when an NOC's data was taken in comparison to the average oil price for the year.[84]

[83] There are 7.1475121 barrels of crude oil per metric ton.

[84] Because petroleum production greatly varies from day to day, there remains the possibility that the snapshot of the NOC is incongruent with that of total oil production in a state.

As mentioned in *Chapter 4*, the microstate of Bahrain will not be accounted for in this analysis. Because Bahrain is a quite a small island nation in the Gulf, their nationalized oil company, Bahrain Petroleum Company (BAPCO), is more dedicated to refining petroleum rather than producing it, as Bahrain has very few reserves compared to its larger neighbors. Bahrain refines around 230,000 b/d of crude oil (General Electric 2017), which is five times the production of the tiny microstate. According to *The Oil & Gas Year*, "the [Bahraini] government still relies on oil and gas for roughly 86% of its revenues. Of these revenues, roughly 80% come from the 300,000 [b/d] Abu Safa offshore oil field, which is owned and operated by Saudi Aramco but from which 50% of the revenues are transferred to Bahrain. The remaining 20% comes from Bahrain's only oil field, Awali, which reached record production levels in June 2015, producing some 56,000 bopd [*sic*]" (Oil & Gas Year 2013).

Brunei will also be eliminated. While the official NOC of Brunei is PetroleumBRUNEI, the Brunei Shell Petroleum Company is also partially owned by the Sultan, and supplies Asian states with 350,000 b/d of petroleum (BSP 2018), far outstripping total Brunei production, which can be found through the IMF database (IMF 2014:11). For its part, PetroleumBRUNEI extracts crude petroleum outside of Brunei from oil blocks in Myanmar, Malaysia (partnered with Petronas), and Canada. Its partnership with Shell skews the data so that it appears that these NOCs produce well over the total production of the Nation of Brunei.

In Ecuador, Petroecuador produces 132 million barrels of petroleum per year. These statistics are public information, found in their website (Petroecuador Informe

Estadístico 2016:10), while total Ecuadorian oil production of just over 200 million barrels per year can be found through OPEC's (2018) official statistics.

Equatorial Guinea's NOC, GE Petrol, along with the Ministry of Mines, Industry, and Energy oversees almost 90% of Equatorial Guinea's total oil production (Obiang Lima et al 2015:3; Leahy et al 2001:22). While the stated figures are not exact, this works is considering this number to be approximately 89% of total production. Equatorial Guinea's total production is 91 million barrels per year, taken from IndexMundi, which bases its data off the EIA (IndexMundi 2018). 89% of 91 million is 81 million barrels per year, which is reflected in the *Hypothesis 3* dataset.

Enerdata has information on Gabon's NOC, the Gabon Oil Company (Enerdata 2016), which produces slightly over 80 million barrels per year. Total Gabonese oil production can be found through OPEC's (2018) official statistics, reflecting a very similar amount of oil production as their NOC.

The National Iranian Oil Company (NIOC) is "overseen by Iran's Ministry of Petroleum, is exclusively responsible for Iran's crude oil and gas exploration and production operations, as well as research projects leading to the development of new oil fields" (Dutta 2013a). For this reason, this work will equate Iranian total crude oil production with NIOC production although recently, Iran has opened its doors to Total, Shell, ExxonMobil, Conoco, Statoil, and BP (e.g., Clinch 2013). This dissertation prefers to not use Forbes to calculate production totals for many NOCs because their productions were often quoted as higher than national averages; yet, some NOCs, such as the Iranian one, have very little public information about them. Given the information above, Iran's production ratio (V_N / V_P) will be 1:1, although this has the potential to decrease given

Iran's partnerships with many MNCs over the past year. Total Iranian production values were 1,108,166,515 barrels per year in 2013, meaning that NIOC had similar production.

The Iraqi National Oil Company (INOC) is another NOC with very hidden production values. Because of this, this dissertation will resort to using the Forbes data, taken from Wood Mackenzie's 2014 analysis (Forbes 2015). This work additionally hesitates to incorporate any 2014 data because production levels were much greater than normal throughout the year, potentially misrepresenting NOC and total state production. However, for certain NOCs, such as the Iraqi one, there is no viable alternative. Total Iraqi petroleum production held at 3.4 million b/d in 2014, meaning that INOC comprised of 58% of total production (EIA 2015).

The Kazakh NOC, KazMunayGas measures crude oil production in tons, but the data is also transferable into barrels per year (KazMunayGas 2016:22). Kazakh production is also available through the EIA, with KazMunayGas generating around 25.5% of total production (EIA 2017).

The Kuwait Petroleum Company (KPC) poses another interesting dilemma for the analyst—its petroleum production consistently surpasses Kuwait's total oil production.[85] KPC's oil production does not seem limited to just Kuwait. They have many subsidiaries that extract, refine, and sell petroleum across the Middle East and in Europe (e.g., KPC's subsidiary, Q8 pronounced 'Kuwait'). KPC is in fact richer than its host state, possibly due to the State of Kuwait's accumulated debt, which accounts for over 10% of their

[85] Calculating petroleum production is a tricky venture. Not only does petroleum production constantly change depending upon the market, international affairs, and supply-side challenges, the price of oil is also constantly changing, partially contingent upon supply. This dissertation is therefore forced to use Ross & Mahdavy's (2015) analysis of petroleum production and attempt to pin NOC production and prices to their model, cognizant of the shortcomings of this data manipulation.

GDP. Kuwaiti information is taken from *Oil and Gas IQ* (Dutta 2013b), and total Kuwaiti production data is taken from IndexMundi, basing it off the EIA (IndexMundi 2018).

Libya's oil production is notoriously unreliable, with armed groups often targeting the El Sharara oil field and halting production (El Wardany & Sarrar 2017). Due to the post-Gaddhafi civil unrest in Libya, this work incorporated OPEC's more recent statistic of Libya's oil production (OPEC 2018). This information was combined with data suggesting that Libya's NOC accounts for 68.75% of Libya's total production (1.1 million b/d out of 1.6 million b/d) during the Arab Spring (Hargreaves 2011) to determine Libya's nationalization ratio.

In Malaysia, Petronas produces around 648,000 b/d (Ananthalakshmi 2016). Because of the large slump in Malaysian oil production, followed by a spike, this work cannot use the data provided by Ross & Mahdavy (2015). Information on total Malaysian production is available through the CEIC charts (CEIC 2018a).

Mexico is another large petroleum producing state. Pemex, the nationalized oil company of Mexico, publishes monthly petroleum output on their Petroleum Statistics page (Pemex 2017), accounting for about 90% of total Mexican production.

Nigeria offers an interesting case as well. The Nigerian National Petroleum Corporation (NNPC) operates in partnership with other multinational oil corporations and locally-owned and operated businesses through Joint Operations Agreements (JOA) and Production Sharing Contracts (PSC). These maneuvers allow the Nigerian government to collect a share of the profits generated by MNCs without having to invest much capital. Although the Nigerian government collects rents and has a powerful (and rumored to be corrupt) body overseeing all oil production—the NNPC—this dissertation would

consider this to be the only petroleum state without a *de jure* NOC. That said, according to their website, the "Nigerian National Petroleum Corporation (NNPC) is the state oil corporation which was established on April 1, 1977" (NNPC 2018). Since its inception, "in 1988, the NNPC was commercialized into 12 strategic business units, covering the entire spectrum of oil industry operations: exploration and production, gas development, refining, distribution, petrochemicals, engineering, and commercial investments" (NNPC 2018). The World Bank has data suggesting that the percentage of GDP stemming from oil rents in Nigeria was hovering at around 3%, and since the NNPC oversees all petro-activity in the country, then it is safe to assume that much, if not all, of these rents are funneled through the NNPC (World Bank 2018).

Turning to Oman, this sultanate also has a strong nationalized oil company. The Oman Oil Company statistics can be found at 2B1st Consulting page (2B1st Consulting 2012). Total Omani production data is taken from IndexMundi, with its nationalized oil company accounting for 99% of total production (IndexMundi 2018).

According to Euro-Pétrole, Qatar Petroleum is responsible for all phases of the oil and gas industry in Qatar (Euro-Pétrole 2016). Qatar Petroleum extracts oil from major oil fields producing four different types of petroleum—Al-Shaheen Crude, Qatar Land Crude, Qatar Marine Crude, and Al-Rayyan Crude—totaling 885,000 b/d (QP 2018). That said, by all accounts, the Qatari national oil production is far lower than Qatar Petroleum's overall production. While in the past, Qatar may have peaked at 865,000 b/d, it does not appear the country is producing at that volume any more (i.e., CEIC 2018b). Note that Qatar Petroleum's peak is less than its NOC's reported crude oil production by

20,000 barrels per day, suggesting that Qatar Petroleum also extract petroleum from outside its borders.

Rosneft, the Russian NOC, is 50% owned by the Government of Russia and produced 210 million metric tons of petroleum in 2016 (Rosneft 2017). However, and this may be deceiving—they also have operations in Venezuela, Brazil, Canada, US, China, Iraq, and Indonesia thereby increasing their total production in comparison to Russian total production. This becomes problematic if this work attempts to create a ratio between NOC production and national production, as the NOC's jurisdiction far outstrips Russian boundaries. However, because Russia's two petro-giants, Gazprom and Lukoil, are privatized, Rosneft's oil production does not supersede Russian total production. Russia is producing 10.98 million barrels of petroleum per day (Paraskova 2018), while Rosneft only accounts for 18.7% of that production though a percentage of that production may be due to overseas projects.

Perhaps the state most well known for its petroleum is Saudi Arabia, and predictably, the Kingdom has its own powerful NOC—Saudi ARAMCO. Originally a joint venture between the US and Saudi Arabia, ARAMCO is short for Arabian American Oil Company. By the 1970s, Saudi Arabia began buying shares of ARAMCO, up until it owned the entire enterprise—just in time to embargo the West (Vassiliev 1998:390). Current Saudi ARAMCO information can be found at their website (Aramco 2018), and total Saudi production is taken from OPEC's (2018) official statistics.

Sudapet in Sudan offers an interesting case as well. According to Summit Communications, Sudapet controls between 5 and 20 percent of every oil producing block in Sudan (Summit 2006). Due to the large spread, this dissertation is adopting the

information taken from the largest oil blocks in Sudan. From here, Sudapet seems to control around 8% of these largest oil fields, so this work is calculating this percentage as the average for Sudan.[86] However, when South Sudan separated from Sudan, the majority of Sudanese oil fields were suddenly in a different country. Yet, because South Sudan is a landlocked country, the main way of exporting petroleum is through a national pipeline running through Sudan and into the Red Sea. For the purposes of this dissertation, it will use statistics from the Sudan that existed until 2011. Information on Sudapet, the Sudanese NOC, was tabulated by the EIA in their country analysis brief (EIA 2014:7). Meanwhile, Sudanese total oil output in 2011 before the split hovered at 490,000 b/d (Al Jazeera 2011).

Moving along to Syria, the Syrian Petroleum Company produces around 55% of Syria's total petroleum output, around 200,000 b/d since the Arab Spring (Butter 2014). However, due to the current war in Syria, reliable data has become quite scarce.

The United Arab Emirates is another oil-rich Emirate in the Gulf, with its own NOC. The Abu Dhabi National Oil Company produces 3 million b/d (ADNOC 2017) accounting for 97% of total figures taken from OPEC.

Venezuela is the state with the largest oil reserves in the world. Venezuela's disadvantage is that, unlike the 'Arabian light' oil found in the Gulf, its oil is comparably denser and sourer. This tar sand-like oil is mostly found in the Orinoco Belt. Higher quality petroleum has been discovered offshore and near Lake Maracaibo (e.g., BCF-17).

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[86] According to Summit Communications, "The biggest project it is currently involved in is the development of Blocks 3 and 7 in southeastern Sudan, where a major oil field has been discovered. Sudapet has an 8 percent stake in the controlling Petrodar consortium, partnering the China National Petroleum Corporation (41 percent), Petronas (40 percent), Gulf Oil Petroleum (6 percent), and the Al Thani Corporation (5 percent)" (Summit 2006).

In 2017, the nationalized oil company of Venezuela, Petróleos de Venezuela, Sociedad Autónoma (PDVSA), produced 2.501 million b/d (Ulmer & Ellsworth 2017). However, official Venezuelan output is lower than publicized output by PDVSA. These discrepancies don't go unnoticed by the media (e.g., Parraga & El Gamal 2017), but as they are the most official figures available, this work is incorporating them into the dataset.

Yemen has multiple companies conducting oil exploration and production, most of them under the umbrella NOC, Yemen Oil and Gas Corporation. Yemeni crude oil production has been incredibly unstable, ranging from 456,000 b/d in 2001 to 24,200 b/d in 2016. While this work would like to use the average production of crude oil, 348,500 b/d from 1995 to 2016 (CEIC 2016), it has been unable to find reliable information regarding the output of the Yemen Oil and Gas Corporation.

For continuity's sake, this dissertation attempted to adopt Ross and Mahdavy's (2015) crude oil price taken from BP's Statistical Review. The world benchmark, Brent Crude, was at $98.95 in 2015. Yet, this is slightly unfortunate because prices precipitously dropped in 2016 and 2017 right after Ross and Mahdavy's (2015) analysis. Currently, Brent Crude trades at $69.50 per barrel rather than the nearly $100 depicted in Ross and Mahdavy's (2015) dataset and a far cry away from the $140 barrel the world saw in 2008. In order to account for the most realistic picture of oil production, this dissertation adopted each state's total crude oil production for the year that there is available NOC data. Both numbers will be multiplied by the price Brent Crude during said year. The EIA has data on 2016 and 2017 Brent Crude Prices (EIA 2018a), along with previous years (EIA 2018b). Some years, such as 2014, saw swings from $111 per

barrel in July drop to $62 per barrel in December, so the totals will be averaged. However, in these averages, there will be some round off error, meaning that this work will take the most realistic picture of the comparative power of the NOC when analyzing the petroleum dataset. Simultaneously, this analysis will be incorporating the GDP data taken from *Hypothesis 2*, which measures GDP in terms of PPP in constant US dollars without "making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources" (World Bank 2017).

Diamond States

The nationalized diamond company of Angola is Endiama, and they produced 8.55 million carats of diamonds, worth $956 million, at a value of around $111 per carat (Diamond Intelligence Brief 2011).

Russia partially owns one of the largest diamond companies in the world—Alrosa, which produces 37.4 million carats of diamonds each year (Alrosa 2018). Yet, the Russian Federation only owns 43.9% of Alrosa, the Republic of Sakha, commonly known as Yakutia, owns another 25%, and eight municipal districts within Yakutia own a percent each of Alrosa. Other legal entities and individuals own the 23.07% rest of the company (Antwerp World Diamond Council 2013:3). Because the Sakha Republic along with the municipalities earning rents from Alrosa are all under the umbrella of the Russian Federation, this analysis is accounting for 76.93% of the profits to be state-owned, cognizant of such a simplification of reality.

Ghana has no nationalized diamond company, though it has a ministry dedicated to ensuring that diamonds are extracted in a humane and legal matter.

Guinea offers diamond, bauxite, gold, and aluminum concession rights to dozens of companies, but does not have a nationalized industry.

The Democratic Republic of the Congo and China partnered to form the Anhui Foreign Economic Construction Group of China and the Democratic Republic of the Congo, which is a 50/50 venture between Anhui (a Chinese mining company) and the DRC in the eastern Kasai province (Kavanaugh 2016). While the data is not yet available, this joint venture is expected to produce 6 million carats of diamonds per year, of which the DRC would keep half since it's a 50/50 venture (Kavanaugh 2016).

Tanzania has its own nationalized mining company, STAMICO, but diamond production data is unreliable. As mentioned in *Hypothesis 1* Tanzania owns 25% of the Williamson Diamond Mine, but there is little data on any other diamond mines controlled by STAMICO. Furthermore, as previously mentioned STAMICO is not only a diamond company, but also mines for gold and coal.

In Ivory Coast, the *Société d'Etat pour le Developpment Minier de la Côte d'Ivoire*, National Society for the Development of Mining of Ivory Coast (SODEMI), overseas all mineral exploration and holds shares in other international mining companies (Bermúdez-Lugo 2012:12.1). While not explicitly stated, it seem that the Ivoirian government receives rents from international mining companies for drilling in their territory, but amounts are not specified.

Sierra Leone owned a nationalized diamond mining company, National Diamond Mining Company (Diminco), which was powerful throughout the 1970s and 1980s, but the company was dissolved in 1993 after a series of corruption scandals (Martinez 2001:232).

The Zimbabwe Consolidated Diamond Company reported 1.1 million carats in the first half of 2017 along with 690,000 carats in the latter half of 2016 for a total of 1.79 million carats (Karombo 2017).

Appendix C (Testing *Hypothesis 4*)

The full description of the coding of colonized states for *Hypothesis 4* is added as part of this appendix. The states that will not be considered former colonies are Ecuador, Iran, Iraq, Kazakhstan, Liberia, Libya, Mexico, Oman, Russia, Saudi Arabia, Syria, Venezuela, and Yemen. In the 19th century, Ecuador, Mexico, and Venezuela won their independence from Spain. Others gained their independence from colonial powers before World War II, such as Syria (1930 from France) and Iraq (1932 from the United Kingdom). Libya's independence from Italy occurred during World War II in 1943, so the short-lived Italian occupation will not be considered. Iran, Saudi Arabia, and Oman were not directly controlled by European powers, and the Ottoman Empire allowed them various degrees of freedom. Due to this history, this work is not considering them to have experienced direct colonial rule *à la* Scramble for Africa. By a slightly different token, this dissertation is not considering Russia or Kazakhstan as colonies because Russia was the founding member of the Soviet Union, while Kazakhstan was annexed, rather than being colonized by it. Liberia was never colonized, and was founded by freed American slaves. Modern-day Yemen was formerly two states, North Yemen (in the west) and South Yemen (in the east). North Yemen, long known as the Mutawakkilite Kingdom of Yemen and backed by the US, has exercised sovereignty over its territory since 1918. On the other hand, South Yemen was a protectorate of the British Crown known as the

Colony of Aden, which, after granted independence from Great Britain, turned itself into the People's Republic of South Yemen and allied itself with the Soviet Union until it was merged with North Yemen in 1990 (and then fought a separatist war against them). Due to the irregular status of Yemen's colonial past, this dissertation is not including a control variable for Great Britain's property rights scores.

States considered being colonies at the denouement of World War II are Algeria, Angola, Bahrain, Brunei, Cameroon, Republic of the Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Guyana, Ivory Coast, Kuwait, Malaysia, Nigeria, Qatar, Sierra Leone, Zimbabwe, Sudan, United Arab Emirates, and Tanzania. Because of the inherent racially-inspired colonization of Algeria by the French, combined with their war for independence from 1954 to 1962, this dissertation will consider Algeria a colony, though the French government technically considered it a *département* of France. Some states, such as Kuwait, Bahrain, and Qatar were granted de facto semi-independence as early as 1913, but remained as British protectorates until the 1960s and 1970s. However, because British control over these microstates was significant, this work is including their colonial past in the testing of *Hypothesis 4*. Finally, most African states gained their independence after World War II, meaning that this analysis will account for property rights enforcement and composite economic freedom scores for France in the case of Algeria, Cameroon, Republic of Congo, Gabon, Guinea, and Ivory Coast. British scores will be accounted for in the cases of Bahrain, Brunei, Ghana, Guyana, Kuwait, Malaysia, Nigeria, Qatar, Sierra Leone, Zimbabwe, Sudan, United Arab Emirates, and Tanzania. The scores for Portugal will be controlled for in Angola, Spanish scores will be accounted for in Equatorial Guinea, and Belgian

scores will be counted in the Democratic Republic of the Congo. As previously mentioned, the colonizers' scores are their current property rights and economic freedom enforcement scores. While they should play a role in the assessment of *Hypothesis 4*, they are not considered the primary variable in this analysis.

Appendix D (Testing *Hypothesis 5*)

This appendix details why a qualitative analysis was incorporated to test *Hypothesis 5* though quantitative measures were also taken. Valuable data found in the UCDP/PRIO Armed Conflict Dataset (Gleditsch et al 2002) from the Uppsala Conflict Data Program (UCDP) at Uppsala University and the Centre for the Study of Civil War at the Peace Research Institute Oslo (PRIO) provides quantitative analyses of violent conflict. The dataset is extensive and thorough, but for the purposes of this research, it holds a few limitations. First, while the list of armed conflict dates back to the end of World War II, the data ends in 2008. The Arab Spring, Boko Haram, conflicts in Syria, Russian occupation of Crimea and Georgia, ISIS, and the overthrow of Gaddhafi are unfortunately not accounted for in the UCDP/PRIO Armed Conflict Dataset. Furthermore, because Kimberley Process data on diamonds extends from 2004 to 2016, and UCDP/PRIO data ends in 2008, there is little overlap between the datasets for accurate assessment.

The second weakness of the UCDP/PRIO dataset is that while there are four types of violence measured, only two types of violence apply to *Hypothesis 5*. UCDP/PRIO measures violence as extrasystemic armed conflict, interstate armed conflict, internal armed conflict, and internationalized internal armed conflict. Extrasystemic armed

conflict is a conflict between a state and a non-state actor outside of the territory of the state (e.g., US fighting al-Qaeda in Afghanistan) and is coded as '1' in the UCDP/PRIO dataset. Interstate armed conflict occurs between two or more states and is coded as '2.' These first two types of armed conflict in the dataset do not apply to *Hypothesis 5*, as they are not forms of internal rebellion. However, the internal armed conflict (coded as '3' in UCDP/PRIO), defined as conflict "between the government of a state and one or more internal opposition group(s) without intervention from other states" (Gleditsch et al 2002) is a type of rebellion. The second type of rebellion, internationalized internal armed conflict (coded as '4' in UCDP/PRIO) is characterized as conflict between "the government of a state and one or more internal opposition group(s) with intervention from other states on one or both sides" (Gleditsch et al 2002). Violence is further broken down by intensity, where minor conflicts—coded as '1'—range from 25 to 999 battle-related deaths, and major conflicts with more than 1,000 battle-related deaths are coded as '2,' perhaps too simplistically. Multi-year conflicts could be coded by year, type, and intensity.

The extant data poses multiple challenges to testing the present hypothesis. First, the analyst would have to conduct two quantitative assessments: one measuring instances of internal rebellions in each state against all of the years in this analysis (1980-2016), and another measuring internal rebellions as a percentage of total violence. Second, there are instances where conflict between two states is only coded once (because it was one conflict). The Iran-Iraq War (1980-1988) for instance, though only one war, is only coded for Iran. In a quantitative analysis, even though Iraq lost nearly a million civilians during this war, it would seem as if the war only influenced Iran. In essence, the data measures

instances and *intensity* of violence, rather than general violence per se. Petroleum-petroleum state conflicts in this analysis will have to be counted only once, as will diamond-diamond states conflicts. With the available data, only two wars included two petro-states in this dissertation (Iran-Iraq War and Iraqi invasion of Kuwait).[87] No diamond states in this analysis fought each other from 1980 to 2016. The logic also holds for resource curse states that waged war against other states that are not in this analysis. For example, Gaddhafi in Libya tried to annex part of Chad, known as the Aouzou Strip[88] in 1987. Since Chad is not in this analysis, such a conflict could only be counted once—as a Libyan conflict—though two states were involved. However, what if a petro-state in this work has a conflict with a diamond-state, also in this analysis? Then the analyst would be forced to code such a scenario for both states. Luckily, from 1980 to 2008, there was only one instance when this took place. Nigeria, a petroleum-rich state, and Cameroon, a diamond-rich state, have had a territorial dispute over the Bakassi Peninsula in the Gulf of Guinea since 1975, with escalating violence in 1996. Fortunately, this minor conflict is the only instance in which two resource curse states in this analysis appear with different resource codes. Finally, how should we code a resource curse state being a party of a larger alliance, such as the minor role Mobuto Sese Seko's DRC played in the Angolan Civil War? Aggravatingly, there are also some states, such as Angola,

[87] The Iran-Iraq War (1980-1988) could be coded under Iran, since Iraqi forces conducted the initial invasion in the Khuzestan Province of Iran. Additionally, since Saddam Hussein's army invaded Kuwait (1990-1991), this work could count the Iraqi invasion as a Kuwaiti problem since it largely occurred in Kuwaiti soil. Both of these conflicts ended up spilling over into Iraq, but since initial invasions occurred in Iran and Kuwait, they could be coded accordingly.

[88] The Aouzou Strip, named after a small town in the region, is a 100 km wide strip of the Chadian Sahara claimed to be rich in uranium.

which faced more than one internal rebellion per year, meaning that they could be coded two or three times for the same year, depending on the number of conflicts.

This lengthy litany of issues renders the quantitative measure of violence with many empirical and theoretical holes. Not only do binary lists of numbers not encompass the agony and nightmares brought on by civil wars, they do not provide insights into incentives and cost-benefit analyses that drive rebels to capture resources. For such reasons, this hypothesis was tested in a qualitative fashion.