

**OIL WEALTH AND POLITICAL (IN)STABILITY: IS IT REALLY THE
RENTS?**

A Major Research Paper presented to the Graduate School of Public and International
Affairs at the University of Ottawa for the fulfillment of a Master's of Arts Degree.

Tuesday October 12th, 2010

Jessica Breugh 3767203

Supervised by

Christoph Zuercher

Table of Contents

Acknowledgements	3
Abstract	4
Introduction	5
Political Instability-A quantitative approach	5
The Results of Goldstone et al	7
Natural Resource Wealth as a Predictor of Civil War	9
Resource Dependence and Conflict	9
Natural Resources in the Goldstone et al Model	14
The Measures for Natural Resource Dependence used by Goldstone et al	14
Alternative Measurements for Natural Resource Wealth	17
Research Question	19
Methodology	19
The Data Set.....	19
<i>Construction of the Dependant Variable.</i>	20
<i>The Independent Variables</i>	21
<i>Data Collection</i>	24
<i>Properties of the Replication Data Set</i>	25
<i>Oil Rent Per Capita Variable Construction</i>	25
Statistical Approach	27
Hypothesis.....	29
Results	30
Descriptive Statistics.....	30
Model Performance: Results of Conditional Logistic Regression.....	32
Discussion	36
Significance of Oil Rents	36
<i>The Case of the Middle East</i>	36
<i>The Rentier Effect</i>	37
<i>Methodological Approach</i>	37
Improvements to the Forecasting Ability?.....	38
<i>Oil and Political Institutions</i>	38
<i>International Actors</i>	39
<i>The Oil Rent Measure Construction</i>	39
Additional Notable Findings: Regime Type	40
Limitations	42
Conclusion	44
Future Research Avenues	45
Policy Recommendations.....	47
Bibliography	52

Acknowledgements

The author wishes to thank Christoph Zuercher for the advice and guidance in developing this research project, Jay Ulfelder from the Political Instability Task Force for advice and clarification related to the data used, and to friends and family who listened to my thoughts and ideas related to this subject and provided the moral and editorial support needed to complete the project.

Abstract

Researchers at the Political Instability Task Force (PITF) recently published an article identifying regime type, infant mortality rates, level of state led discrimination and the stability of bordering states as best measures for predicting the onset of political instability. None of the additional variables tested were significant and improved the model's forecasting ability. Additional variables included natural resource dependence of a state. This measure was constructed using ratios of export revenues based on crude oil, petroleum, ores and metals. The purpose of this research paper is to test an alternative means of measuring resource dependency by focusing directly on the relationship between oil rents and political instability. As such, an 'oil rent per capita' variable was created and tested alongside the PITF's variables. A conditional-regression analysis revealed a significant negative relationship between oil rents and political stability. However, the new measure did not improve the overall forecasting ability of the model. Notable findings also include an increase in odds of conflict in partially democratic states that exhibit factionalism. Several theoretical and methodological reasons for these findings are presented.

Introduction

The purpose of this major research paper is to test an updated measure of oil wealth using a recently published model forecasting political instability.

Political Instability-A quantitative approach

The factors associated with political instability have received much attention in academia, policy circles and in the works of Non-Government Organizations around the world. In doing so, many researchers have attempted to isolate factors believed to predict state instability and conflict. Authors such as Fearon and Laiton (2003) have focused on political incentives of military groups, state apparatuses and rebel groups ability to amass support. Others have turned to state institutions and political structures to broaden their understanding of political instability and civil wars (see Esty et al 1998, Ballentine 2003 and Hegre et al 2001). Still, a large percentage of research on state growth and stability continues to be focused on economic approaches such as those taken by researchers Sachs and Warner (1995) and Collier (2000) and Collier and Hoeffler (2002 and 2004).

Quantitative research approaches have also gained in popularity. This approach allows researchers to use statistical methods to isolate variables believed to be associated with conflict. These studies have taken both macro level (see Collier & Hoeffler 2000), and micro level approaches to conflict analysis (see Humphreys & Weinstein 2008). This has allowed for greater understanding of the nature of civil war and to test the measures developed by quantitative researchers believed to be predictors of civil war onset (Sambanis 2005:303).

Recently, the Political Instability Task Force, sponsored by the George Mason University Centre for Global Policy, published an article forecasting political instability.¹ The researchers built a parsimonious model to predict three types of political instability. These were civil war, adverse regime change and political and ethnic genocide. Four models were published. One for each subcategory and a final model with all types of instability compiled. According to the state centered approach that was taken, the authors identify that, “A united and administratively competent regime can defeat any insurgency; it is where regimes are paralyzed or undermined by elite divisions and state-led conflicts that revolutionary wars can be sustained and states lose out to insurgencies.” (Goldstone 2010: 191). They further argued that focusing on state structures and elite relationships were just as important to state stability as traditional economic and resource based approaches (Goldstone 2010:191).

The four predictor variables that best fit their model were the regime type of a country, infant mortality rate, the neighborhood the state was in, and the level of state led discrimination. These variables fit with the theoretical argument presented by Goldstone et al (2010). This is because, with the exception of infant mortality rate, these variables all take a state level focus, reflecting the nature of elite relationships in a country, as well as the governance within the country and the immediate bordering countries.

¹ The Political Instability Task Force, sponsored by George Mason University, Center for Global Policy located in Arlington, Virginia, USA is a research institution that houses and manages a large database and collects and maintains information and data on state vulnerability. Funded by the Central Intelligence Agency, this think tank also publishes policy relevant research in the realm of political instability used by US government officials (PITF 2010).

The Results of Goldstone et al

The first significant predictor variable, regime type, was developed from a compilation of several ‘democracy’ and ‘autocracy’ indicators including the level of competition in political participation and the manner in which executives are selected in government. It was argued that these two aspects best characterize ‘modern government’, an important aspect for state stability (Goldstone et al 2010:195).

The test for regime type revealed that full autocracies had the same risk levels for instability as full democracies. Partial autocracies and partial democracies without factionalism had higher odds of instability compared to full democracies and autocracies. Finally, partial democracies with factionalism were 30 times more likely to exhibit instability compared to full autocracies.

A second predictor variable tested was the Infant mortality rate of a country. Results showed that a state had a seven times greater risk for instability if it was in the 75th percentile of infant mortality rates, compared to the 25th percentile. A third predictor variable tested was the state’s neighborhood. They found that if a country was bordered by four or more countries also experiencing instability, they were more likely to experience instability. This was the case for 11 of the 117 cases of instability included in the model. A fourth and final predictor variable tested was the level of state led discrimination in a country. Finally, states that employ open discrimination against one or more minority groups tripled the odds of political instability. However, results showed that the effect of political governance of the country far outweighed the effects of the other three predictor variables, causing the authors to conclude that the political

characteristics of a state more accurately predict the behavior of states and probability for conflict.

The Goldstone et al (2010) research team tested many additional predictor indicators thought to be associated with political instability. This included sociological and demographic measures, political measures, and economic measures. Sociological and demographic measures that were tested included ethnic composition, the ‘youth bulge’ of a country, life expectancy at birth and population density. All of these factors were associated with political instability by researchers such as Collier and Hoeffler (2002), Collier, Hoeffler and Rohner (2009) and Azam (2001). Political factors tested included the duration of a specific regime, years in office by a leader, corruption and type of political system. Support for testing political factors can be found in research published by Elbadawi and Sambanis (2002: 329, 331), and level of democracy or ‘regime type’ by Esty et al (1998) and Hegre et al (2001). Finally, economic measures that were tested included income per capita, economic growth, resource wealth, poverty and unemployment levels reported to be factors by Collier and Hoeffler (2005), Fearon and Laiton (2003) and Ballentine (2003). Once the regime type, infant mortality rates, country neighborhood and state-led discrimination of a state was controlled for, none of the additional predictor variables improved the fit of the model.² This is surprising given previous research in the field of antecedent conditions for civil war.

² It is important to note that the Goldstone et al (2010) researchers were looking for predictors that would best fit their model, not just those that reached statistical significance. They did not report which variables did reach statistical significance.

Natural Resource Wealth as a Predictor of Civil War

The treatment of resource wealth in the Goldstone et al (2010) model is interesting. According to the researchers, a measure of resource wealth was included to capture what has called 'the resource curse'. The 'resource curse' generally refers to the phenomenon that developing countries with high levels of resource wealth are also more apt to have lower levels of economic growth (Sachs and Warner 2001). They also tend to suffer from higher levels of corruption and poor governance both in the natural resource sector, and at the state level (Ross 2001, Rosser 2006; Steven and Dietchse 2008). Econometric models focused on state instability and conflict have also suggested that state economies dependant on export commodities, and oil in particular, have an increased likelihood for conflict compared to states where this is not the case (Collier 2000: 2; Fearon & Laitin 2003: 85). Natural resource wealth and dependence has also been shown to be antecedents to state instability and conflict in both qualitative and quantitative studies (Rosser 2006, Jensen & Wantchekon 2004). The results of resource dependence measure used by Goldstone et al (2010) would suggest otherwise because it did not improve the predictability of the model. This presents an interesting conundrum, given the vast literature related to natural resources and conflict.

Resource Dependence and Conflict

The relationship between natural resource dependence and conflict has been studied extensively. Results from these studies have shown that resource abundance in many fragile or chronically instable states tend to increase the probability for conflict (see Collier et al 2003) and that these conflicts tend to be longer (Fearon 2005). Specific cases include Nigeria (Oil), Angola (Oil, Gems), Congo (Oil), Democratic Republic of Congo

(Colbalt and Copper), Sierra Leone (Diamonds), Liberia (Timber), Côte d'Ivoire (Cocoa), Sudan (Oil), and Indonesia (Oil) to name a select few.

Researchers have explored several causal mechanisms that may explain this trend. Some argue in support of both sides of the greed and grievance hypothesis (Collier and Hoeffler 1999; Renner 2002; Kandeh 2005). Others have focused on international aspects of resources and conflict examining the role international commodity markets and economic policy (Klare 2002; Rosser 2006). Still others have taken an institutional approach examining the nature of elite relationships and institutional development (Dunning 2005). These will be discussed in the following section.

The prevalent theoretical understanding of resources and war fall within the understanding of greed and grievance hypothesis (Collier & Hoeffler 1999). The greed component of this hypothesis argues that rebellion and conflict occurs for the desire to accrue resources from the state, or other groups in a society. The grievance aspect of this debate argues that internal conflicts begin with political, social or economic grievances of a particular group. However both aspects are not mutually exclusive. As Collier and Hoeffler (1999) state, “The claim that motives are altruistic may serve as a convenient smokescreen for greed, or alternatively, looting may be a necessary means by which altruistic objectives are financed.” (pg.15).

Some authors such as Renner (2002) have argued that conflicts involving natural resources are the reaction to the impact of natural resources on local communities where the resources are located. For him, conflict is motivated by the perceived inequalities or grievances felt by local communities who may not feel that they are benefiting from the wealth. By contrast, Collier & Hoeffler (2000) contend that conflict is motivated by

‘resource capture’, or other economic opportunities for command and control of commodities and resources. Still others have argued that civil wars start as grievances, and are sustained by greed (Kandeh 2005), while others have argued the exact opposite; conflicts are driven by the opportunity for increased resources, generating grievances from this (Collier & Hoeffler 2000). These studies all highlight the significance of resource wealth in driving conflict. Whether conflict occurs due to a lack of distribution of wealth, the result of the desire to capture state wealth, or a mix of both, it is easy to see how resource wealthy states might be more prone to instability.

Taking an international approach, Klare (2002) has argued that global economic dependence of a particular resource may increase the probability of conflict if this resource is very valuable on international markets. This would make the state more prone to intervention and be the brunt of turbulent international commodity markets. These types of resources include high demand commodities such as oil. It is the price volatility of commodities, coupled with inadequate state fiscal policies in the natural resource sector is what tends to place the state at a greater risk for instability (Rosser 2006)³. Following the greed hypothesis, if the resource becomes very valuable, it may create higher profits for those in control of the commodity and by default offer more incentives for rebel groups to seek state capture. By contrast, if the resource experiences price turbulence, it may cause resentment and mass mobilization towards government and elites. Others have agreed with this theoretical approach, adding that petroleum states are prone to rent seeking behaviors, corruption and clientelistic behaviors (Pendergast,

³ Examples of effects of poor economic policies in resource abundant states include the ‘Dutch disease’, which is an economic condition that occurs in many resource abundant states. It occurs when the value of a country’s currency is overinflated because of high demand of the resources. This negatively affects the development of other industries in the country, leading to further dependence of the resource to the state’s economy.

Clarke, van Kooton 2008). The turbulence associated with rent-seeking behaviors that cause instability within a country includes inflation, unemployment and conservative social policies. This may spur resentment from the general population and increase the probability of conflict. It may also cause increased states security apparatuses to protect the regime in power from belligerents. This is something that may actually reduce the likelihood for instability.

A final theoretical argument to explain the relationship between natural resources and conflict takes an institutional approach. Researchers in this camp have made the claim that conflicts and instability are the result of the co-variance of weak government institutions and elite behaviors. Dunning (2005) argues that resource conflicts are conditional upon the trade offs that elites make when deciding the amount of investment they will make in developing the sector and distributing the benefits generated by the resources. For him, these choices depend on whether or not the elites in the society perceive future benefits for themselves by the types of investments they choose. Ron (2005) has argued that high resource dependant states can create political vulnerability because highly dependant states also exhibit low-capacity institutions. This is because many of these states do not develop appropriate mechanisms to resolve conflicts related wealth and resource management. This makes them more prone to conflict and political instability (Cramer 2007:120). For petro states in particular, Karl (1999) argues that they become "...marked with skewed institutional capacities" (pg 34) because often institutional development becomes centered around the resource industry. Similarly, Le Billion has indicated that natural resource wealth hampers the development and maintenance of "political institutions to peacefully resolve conflicts" (2001: 562). This is

especially so if the resource is discovered before democratic governance can be consolidated, functioning government institutions can be developed and a culture of prudent and calculated resource management can be established in the society (Eigen 2005: 2; Fish 2005:127). Indeed, Humphreys (2005) tested this empirically and found that oil production in particular created more vulnerability for conflict in weak states especially.

Fearon (2005) has also shown that primary export economies, heavily dependant on oil in particular, are prone to conflict. It was hypothesized that this occurred because their governments are less reliable and weaker. This is because low levels of per capita income, control, and access to the state-controlled resources is very lucrative for both rebels and statesman alike. Connecting the institutional approach with the greed and grievance literature, Sambanis (2005) argued that the impact of weak states and institutional development is felt in state *responses* to claims and grievances over resource distribution and wealth. In a highly resource endowed state, the sheer *volume* and *value* of natural commodities makes them highly lucrative to gain control of. It also makes them more prone to grievance over distribution.

Goldstone et al (2010) found that the type of regime present in a country was the strongest indicator for instability. If states with high resource dependence also tend to have poor or weak political institutions, then the effect of resource dependence should have been evident in Goldstone's findings. This is particular compelling given the fact that the choice of measure was specifically targeting certain types of resources, notably, resources in the energy sector. Indeed, Fearon and Laiton (2003) and Fearon (2005) both

showed that fuel exports in particular had the strongest relationship to conflict onset compared to other commodities like cash crops.

Natural Resources in the Goldstone et al Model

To capture the potential effects of natural resources and instability, the predictor variable used by Goldstone et al (2010) was export revenues from fossil fuels, fuel exports as a percentage of merchandise exports, crude petroleum exports as a percentage of all commodities and ores and metal exports as a percentage of merchandise exports. Using these measures revealed no significant effect in the overall model, nor did the predictor variables improve the classification of stable and instable states. One possibility of why this may have occurred may be the choice of measures used by Goldstone et al (2010) to capture the effect of resource wealth and dependence of a country.

The Measures for Natural Resource Dependence used by Goldstone et al

The measures used in the Goldstone et al (2010) model capture various types of Primary Commodity Exports (PCE). This approach has been widely used in the literature, but has been contested by some (for example, Collier & Hoeffler 1999, 2000 vs Ross 2006). In addition, researchers using PCE ratios seem to report varying effects. Some have noted that resource do have an effect (Ross 2001, Collier and Hoeffler 2004, Collier, Hoeffler and Rohner 2009), while others report little or no effect (Goldstone et al 2010, Fearon 2005), while others such as Elbadawi and Sambanis (2002) report both significant and non significant effects depending on the coding and choice of measures used in their models.

There are several explanations for the continued use of PCEs as a measure for resource dependence. These include issues of data appropriation as well as theoretical arguments for the effect the measure is capturing. Firstly, the availability of complete time series data measuring export to PCE ratios is easy to obtain and is available for many different countries (Collier and Hoeffler 2005). This makes testing claims related to resource wealth more exhaustive by increasing coverage to a large amount of states and country years. PCE's are used as a measure for resource wealth under the assumption that it reflects the manner in which a state organizes its economy; the dependence of the resource in the economy, the state's ability, or manner, of providing public goods, the level of corruption in the country and the strength of state institutions (Sachs and Warner 2001; Fearon and Laiton 2003). Similarly, some have used PCE ratios to capture the 'opportunity' effect in the Collier and Hoeffler model of greed and grievance in conflict. However, because the measure is used to reflect so many different theoretical relationships between resources and conflict, it becomes difficult to disentangle the mechanisms at play in the resource conflict phenomenon.

While PCE is used extensively throughout the literature, a debate regarding its use is now emerging. The debate is based on issues concerning the validity of measure itself, how the measure is constructed and the ease of comparability between countries. Issues concerning the validity of the measure primarily focus on how PCEs classify states, and what the measures of PCE actually capture. As Ross (2006) indicated, a large ratio of resources exports may be a reflection of a poorly developed manufacturing or service sector of the economy, or the impact of previous or current internal conflicts. Ross (2006) also noted that primary exports as predictor variables do not measure the importance of

natural resources of a country, but rather the amount of a country's wealth plus any primarily commodities processed within the country.

Looking at how PCE measures are constructed is an additional aspect of the current debate. Both Ross (2006) and Humphreys (2005) have noted that resource exports take into consideration levels of *re-exports*, which are commodities that are imported, processed, and then re-exported. Taking this into account is what allow countries like Japan to rank high on exports to GDP ratios, even if they have very few local commodities (they have large-scale processing facilities). Because re-exports are included in this measure of resource wealth, it may also weaken the relationship resources and conflict. This is because resource dependence as measured by PCE would classify both modern, technologically advanced states who possess processing and refining facilities such as Japan, and states with copious amounts of resources, who have yet to fully develop other industries, in the same group. These states would most likely not be classified within the same category in the Goldstone et al (2010) regime type variable, causing the effect of PCE's to be dispersed across all groups; losing any statistical weight it may have had.

A final aspect of the PCE debate is the ease of comparisons across countries. Solutions for this issue have been purposed that include controlling for population size in order to measure the wealth of the resources of a country in proportion to its population. Used by researchers such as Humphreys (2005), the per capita measure allows comparisons across many different countries, regions and political units with varying population levels (Lyons 1977:177). Additional per capita measures have been tested, with different patterns of resources and conflict emerging. For example, Ross (2003)

controlled for income per capita. His research indicated that typical patterns of oil and conflict, broken into three groups of oil dependence (high, medium, low), only revealed high probability for conflict when per capita income was controlled. Once controlled, countries with higher resource dependence had higher rates of civil war compared to middle or low levels of dependence. Without holding resource income per capita constant, a country with high resource dependency showed a lower risk for civil war compared to a lower dependant country. The Goldstone et al (2010) model did not incorporate a per capita measure in their natural resource predictor variables. As a per capita measure reflects the amount of oil wealth per person on a comparative basis, updating the Goldstone et al (2010) model to reflect this would most certainly change their outcomes. This is because resource wealth would now be a reflection of population size and not simply the income generated by the state. Although the population size may not thwart a corrupt government official from taking their share of profits, it does give an indication the pressures for distribution of profits.

Alternative Measurements for Natural Resource Wealth

The critical appraisal of the use of PCEs to measure resource wealth has spurred the development of new measures that more accurately reflect the relationship between natural resources. This has occurred primarily by measuring the amount of resource rents of a state, rather than export ratios of natural resources. It has been argued that rents better capture the problems of natural resource wealth because rents are essentially the *profits* that a state garners from the sale of their resources. It may also measure the

potential repercussions of this income.⁴ The elimination of re-exported commodities in counting the amount of income from a particular resource has also occurred. The inclusion of a per capita measure has also been widely incorporated. Hamilton and Clemens (1999), Ross (2006), and Dunning (2008) have all used data sets that measure oil rent per capita rather than resources as a percentage of exports. The change has been reported to have improved the robustness of the effects of natural resource wealth and political instability (Ross 2006).

Why this change may have occurred has also been studied. For example, the change may be reflecting the fact that oil rents cause problems for many states because political actors become more apt to behave in rent seeking, corrupted ways. This leads to dysfunction or failed state institutions and increased desire for political control and private capture (Kolstad and Wiig 2009). Others have argued that the decision-making related to the allocation of resources is profits, where economic, political and social instabilities may be rooted, is also what causes distinct economic and political behaviors of states (Ross 2006:273).⁵ A measure of oil profit would best reflect this. In addition, Dunning (2005) has argued that the rents of a particular country may also be a reflection of how well the state was able to harness and develop their resource sector. This reflects of some of elite relationships and management of the country. What is important to note is that in all these research studies, the updated natural resource measure changed the relationship between resources and instability. This same change may occur in the

⁴ Repercussions could mean anything from economic turbulence, political and elite based clientele relationships that may or may not develop and the increased possibility of rebel groups eyeing for state capture.

⁵ For a discussion of state behaviors as a result of large oil rents, see Balbawi's (1987) discussion on the rentier state and Ross (2001) which presents an empirical analysis of this issues. For discussions on the impact of rents and economic development, see Rosser (2006).

Goldstone et al (2010) model if the predictor variable for natural resource wealth is changed to capture rent or profits of a state, rather than exports.

Research Question

The role of political institutions defined by Goldstone et al (2010) seems to predict a large percentage of civil wars. In doing so, once this is held constant, the researchers indicated that no other indicators serve as significant predictor variables for instability onset. The literature shows that there seems to be a connection between natural resource wealth and state stability. Measures in the field have become more precise to show these connections quantitatively. However, Goldstone et al's (2010) choice of measure for natural resource wealth does not reflect these changes. As such, there is reason to believe that the choice of measure chosen by the Goldstone et al (2010) research team may be a reason why it was not significant in their model. If resource abundance and conflict is related to the high profits and access of a resource for elites, especially in the case of oil, then it makes sense to assume that rents would better predict instability than oil exports. Using a rent per capita measure would subsequently reflect rents on a proportional basis and allow for improved comparability between states.

The research question for this paper is therefore: Would using *Oil Rents Per Capita* as a measure for resource dependence be a better predictor in Goldstone et al (2010) model for predicting political instability?

Methodology

The Data Set

The data set used for this analysis is a replication data set prepared by Goldstone et al (2010), and made available by the Political Instability Task Force. The following section will briefly summarize the methods used by the Goldstone et al (2010) research team to develop and produce this data set.

Construction of the Dependant Variable.

Goldstone et al (2010) defined types of instability based on three factors, *Civil War*, *Adverse Regime Change* and *Political and Ethnic Genocide*. Civil war was defined as conflicts between state led forces that have escalated to at least 1000 deaths, with no less 100 per year (Fearon & Laitin 2003). The start of the conflict is marked when a conflict reaches the 100 deaths per year threshold; the cessation of conflict is the direct opposite, the year in which death fall below this threshold.

Goldstone et al (2010) defined the term *Adverse Regime Change* as “adverse shifts of political institutions that involved the sudden loss of authority of central state institutions and/or their replacement by a more radical and nondemocratic regime” (Goldstone et al 2010: 191). They capture this quantitatively by using cases of all countries that experienced a decline of six or more points of the Polity IV autocracy-democracy scale.⁶ They also included countries that experienced certain coup d’états. They defined coup d’états as the dissolution of central state authority or a military coups. This captured such instances as Somalia in 1990 and the Iranian Revolution of 1979 (Goldstone et al 2010:191). Referring to the Harff (2003) definition of Genocides and Politicides, Goldstone et al (2010) operationalised instability as *Politicides and Genocides* if a country acted in order to exert targeted violence on a particular group of

⁶ The Polity IV scale is a 21 point scale (Marshall and Jagers, 2003).

people based on common characteristics such as ethnicity or religion they were classified as genocides. Persecution of a particular group based on political affiliation was considered to be a politicides.

The Independent Variables

The Goldstone et al (2010) model is based upon four independent variables. The independent variables included in the model *Regime Type*, *Infant Mortality Rate* (Marshall and Jaggers, 2003), the region of the state, referred to as *Neighborhood*, and the level of *State-led Discrimination*.

Regime Type is a categorical variable and is constructed using two variables from the polity IV dataset. These two variables were executive recruitment (EXREC) and the level of competitiveness for political participation (PARCOMP). It was argued that these two polity IV variables would capture the level of ‘inclusiveness’ of a particular political culture of a country. The amalgamation of these variables produced a five category variable, with each country classified based on the rank score received on the EXREC and PARCOMP scores. EXREC was measured from 1-8 likert scale, and PARCOMP was measured on a 0-5 likert scale. Based on their combined PARCOM and EXREC scores, countries were classified as *full autocracies*, *partial autocracies*, *partial democracies*, *partial democracies with factionalism*, and *full democracy* (see Goldstone et al 2010: 196).

Chart 1: Regime Type Variable Construction from Goldstone et al (2010).

Competitiveness of Political Participation (0-5)

Executive Recruitment (1-8)	Repressed (0)	Suppressed	Unregulated	Factional (1)	Transitional	Competitive (5)
Ascription			Lightest Grey	Lightest Grey	Lightest Grey	Lightest Grey
Ascription and Designation			Lightest Grey	Lightest Grey	Lightest Grey	Lightest Grey
Designation			Lightest Grey	Lightest Grey	Lightest Grey	Lightest Grey
Self-Selection			Lightest Grey	Lightest Grey	Lightest Grey	Lightest Grey
Ascription and Election	Lightest Grey	Lightest Grey	Dark Grey	Black	Dark Grey	Dark Grey
Transitional or Restricted Election	Lightest Grey	Lightest Grey	Dark Grey	Black	Dark Grey	Dark Grey
Competitive Election	Lightest Grey	Lightest Grey	Dark Grey	Black	Dark Grey	Black

White= Full Autocracy Black= Full Democracy Lightest Grey=Partial Autocracy Medium Grey= Partial Democracy
 Dark Grey=Partial Democracy with factionalism Black=Full Democracy.

Replicated Table from Goldstone et al (2010:196)

Chart 1 is a reproduction of the regime variable as constructed by the Goldstone et al (2010) research team. States scoring between 0 and 1 on the PARCOMP, and scoring 1-5 on the EXREC scales were classified as an *autocracy*. States scoring 2 to 5 on the PARCOMP score and 1-8 on the EXREC scores were classified as a *partial autocracy*, states scoring 2 or 4 on the PARCOMP measure and 6-8 on the EXREC measure were classified as a *partial democracy*. States scoring 3 on the PARCOMP measure and anywhere between 6 and 8 on the EXREC measure were classified as a *partial democracy with factionalism*. Finally, a state was classified as a *full democracy* if they scored 5 on the PARCOMP score and 8 on the EXREC score.

The variable used to measure *Infant Mortality Rates* was a logged ratio normalized to the global mean for each year included in the dataset and was used as a general proxy for economic well being of a country (see Goldstone et al 2005: 22).

The *Neighborhood* independent variable was taken from the Political Instability Task Force data sets and was used as a measure to distinguish between countries bordering four or more countries that were also experiencing any form of major civil conflict or ethnic conflict. States bordering 4+ conflict states were grouped together and classified as 1. States bordering 0-3 conflict states were grouped together and classified as 0 (Goldstone et al 2005:23).

The final independent variable in their model was whether or not *State Led Discrimination* was present in the country. This variable was derived from two indicators from the Minorities at Risk Project, one measuring political discrimination (POLDIS), which was rated on a scale of 1-4. The second was a measure for economic discrimination (ECDIS), which was rated on the same scale (Minorities at Risk 2002: 38-39). This variable in the Goldstone et al (2010) replication data set is a compilation of both measures. Any state scoring 4 on either political and/or economic discrimination were coded as yes, while those scoring anywhere between 0 and 3 were coded no.⁷

Both *Neighborhood* and *State Led Discrimination*, measures were initially tested in their original forms. However they had greater accuracy in the model when they were transformed into dummy variables (see Goldstone et al 2010:197 and footnote 18 from Goldstone et al 2005:23).

⁷ A score of four on either discrimination measure was defined as a state enacting any public policies that severely restrict a group's political participation or economic opportunities, see Minorities at Risk 2002:38-39.

Other predictor variables that were tested went through two steps. The first step was to see if the measure has a significant effect in the model. If it did achieve significance, the researchers calculated the ability for the new model to correctly classify conflict and stable states. Regardless of the predictor variables' significance in the model itself, if the additional predictor variable did not improve the classification levels it was removed from the analysis.

Data Collection

Goldstone et al (2010) adopted a case control method as their research design. They chose this because of the rarity of civil wars and political instability, and borrowed the method from traditional epidemiology studies. The method allows one to match countries that experience instability versus those countries that remained stable. It also mitigates the problem of underestimating the probability of rare events that traditional logistic regression coefficients report (see King and Zeng 2001:154). In their research, each instability case was matched with three cases of stability based on geographic region (African countries, matched with African countries), and year (two years prior to instability). Predictor variables were then collected based on this selection.

This process was completed two additional times, to allow each model to be tested against three different sets of control cases. Control cases were selected at random from a bank of all country years between 1955 and 2003. This range represented all the years from which the instability cases were taken. A country was defined as stable if it satisfied the conditions of over 500,000 inhabitants and had been stable for at least a minimum of two years before and four years after the year the case of instability began (see Goldstone et al 2010:193).

Data was collected for all cases of instability (the cases) and stability (the controls) two years prior to the onset of conflict. This approach was taken in order to apply the ‘forecasting’ effect to their model.

Properties of the Replication Data Set

Between 1959 and 2005, the replication data reported 117 cases of instability. Regional analysis show that 39 of these cases of conflict were in Africa, 26 in Asian countries, 15 in Europe, 17 in Latin American, and 20 in the Middle East.

Oil Rent Per Capita Variable Construction

As per Ross (2006) and Dunning (2008), an *Oil Rents per Capita* measure was included as a new, updated, measure of resource wealth. Data was compiled from the environment division of the World Bank depository of data and statistics (World Bank 2010) and the population scores were taken from United Nations data depositories.

The World Bank data is time series data that has been collected for all oil exporting countries between 1970 and 2008. Only the conflict and case control years from the Goldstone et al (2010) data set were used. The available data did not cover the entire period of the Goldstone data set (which starts from 1950). The World Bank data is part of a larger research project related to environmental depletion and sustainability. Oil and natural gas rents were available based on price, price per unit (US dollar per ton), production levels (in tons) and rents. Economic rents were measured on a dollar per ton basis.

The World Bank defined rents as ‘the excess return to a given factor of production’. This was calculated by taking the difference in world oil prices and the average cost of

extraction for each country in the data set. The cost of extraction was measured on a dollar per ton basis. Rent rates would calculate by using the following formula:

$$\text{Rent} = (\text{Price of Oil} - \text{Unit Cost}) * \text{Production}$$

All available data scores for each case on instability and their controls were manually inputted into the data set. Following the method and forecasting approach of Goldstone et al (2010), the oil rents used represented the dollar amounts from two years prior to cases of instability. Population statistics were taken from the UN depository and were inputted using the same approach. To calculate the per capita variable, the oil rent scores were divided by the population scores. This produced an *Oil Rent per Capita* predictor variable to indicate the amount of tons of oil per year, per person each country had. The predictor variable was then logged.

As stated, the updated oil data was only available from 1970 to 2008. As a result, a 10-year gap in oil rents was present, affecting 38 out of 117 cases of instability. In the case of missing data, two approaches were taken. To capture four conflicts starting in 1970 and 1971 required data from 1968 and 1969. Therefore, the missing information was found using archival UN population statistics, OPEC World Oil Prices, the Statistical Review of World Energy Prices and data from Humphreys (2005). Rents were calculated using the rent formula from the World Bank. All conflicts starting before 1970 were removed from the analysis, reducing the sample size to 79 cases of conflict (plus their controls). While small, the size does not diverge largely from other studies in the field (Collier and Hoeffler, (2004:564) sample size was also 79). In addition, in Ross (2006), cases of instability in countries with oil and natural gas increased sharply in the early

1970s and late 1990s, so the data starting from 1970 will at least capture this effect, even if a restricted the range among the conflict years exists.

Statistical Approach

A conditional logistical regression was performed using all cases on instability from the original data set and the four original independent variables. This allowed for a point of comparison between the full problem set and the new reduced sample size. A second regression was performed using the new sample size to make this comparison, and also to have a baseline estimates for the model before the insertion of the new oil rent variable. Following this, the model was re-run with the inclusion of the logged *Oil Rent per Capita* variable.

In general, logistical regressions assess the impact of independent variables on a binary or dichotomous outcome. This type of regression assesses the likelihood that a state will experience political instability or remain stable (with the dependant variable coded as 0 = the state will remain stable and 1 = the state will experience instability). In this case control design, each case of instability where $Y=1$, is matched with three cases stable countries where $Y=0$, by country region and year (two years prior to instability onset).

In order to match the samples to their controls “One calculated [s] the difference between the values for the case and the control on Y and on (x_1, X_2) ... and fits the model that forces the intercept parameter α to equal zero.” (Agresti 1996: 233). The dependant variables from both cases and controls are regressed against the identified predictor variables, with each matched sample compared (Agresti 1996: 231). The conditional

logistic regression is applied to avoid bias results by overestimating the calculated odds in non-rare events, and underestimating the calculated odds in rare events data (Oxford 2010; King and Zeng 2001).

The conditional logistical model encompassing five independent variables is:
$$\text{Logit}(\theta_i) = i + \beta_1(\text{Regime Type}) + \beta_2(\text{Infant Mortality}) + \beta_3(\text{Border States}) + \dots + \beta_4(\text{State led discrimination}) + \beta_5(\text{Oil rents}) .$$

The logit is equal to the logarithm of the odds ratios of the independent variables in the model, and β_i represents the factors that may increase or decrease the likelihood of instability by the change in every unit of the individual β_i measure (Agresti 1996: 233, Oxford 2010). In this case, a unit increase in any independent variable will increase the odds of correct discrimination between the dummy variable by the β score for this variable.

The interpretation of a conditional regression changes slightly from that of a traditional, unconditional, logistical regression as it now assesses the odds of correctly distinguishing between cases of instability with their matched controls, based on all independent variables inputted into the model. The conditional regression analysis calculates the odds that a country will experience instability in year $t + 2$ (as the variables in the data set measure characteristics of the country two years *prior* to instability). These odds are based on comparing characteristics of all independent variables between cases of conflict and their controls (Goldstone et al 2010:194). For example, the odds that an unstable state has high infant mortality rates, has a specific type of regime, high oil rents, etc, is compared to the odds that the stable state has all these factors. The model scores are not predictions for instability and therefore required no correction for the

underestimates of Y estimates that is prevalent in rare events data (King and Zeng 2001:143).

After the conditional regression was performed, a model score was calculated for each country and then each country ranked based on their predicted model score. The model score represented each individual country's odds of being classified as instable. Conflict and controls were ranked separately. A cut off score was established to test the percentage of correct classifications compared to incorrect classifications. Conflict effected states above this cut off score were considered as 'correctly classified', and non-conflict states (the controls) that scored below this number were considered 'correctly classified'. The point was chosen to balance the amount of properly classified and misclassified cases, balancing the number of type I and type II errors (this is the method employed by Goldstone et al 2010). The final stage was to compare all the classifications of stable and unstable, with the actual cases of instability to see how well the coefficient scores could distinguish between cases and controls. This was expressed as a percentage of correctly classified cases.

Hypothesis

In all, the Goldstone et al (2010) model identified a combination of four independent variables that were best able to distinguish the onset of state instability against states that remained stable. The measurements used to capture natural resource wealth were changed to reflect new research and development in the field. It is predicted that the inclusion of *Oil Rents Per Capita* will be a significant factor in the model and in turn, improve the predictability of the forecasting model. The null hypothesis expressed as:

μ_0 : *the level of Oil Rents Per Capita will not have a significant effect in the Goldstone model.*

The alternative hypothesis 1 expressed as:

μ_1 : *the level of Oil Rent per Capita will improve the models ability to distinguish between conflict and state states.*

The alternative hypothesis 2 expressed as:

μ_2 : *the level of Oil Rent per Capita will improve the models classification of conflict and non-conflict states.*

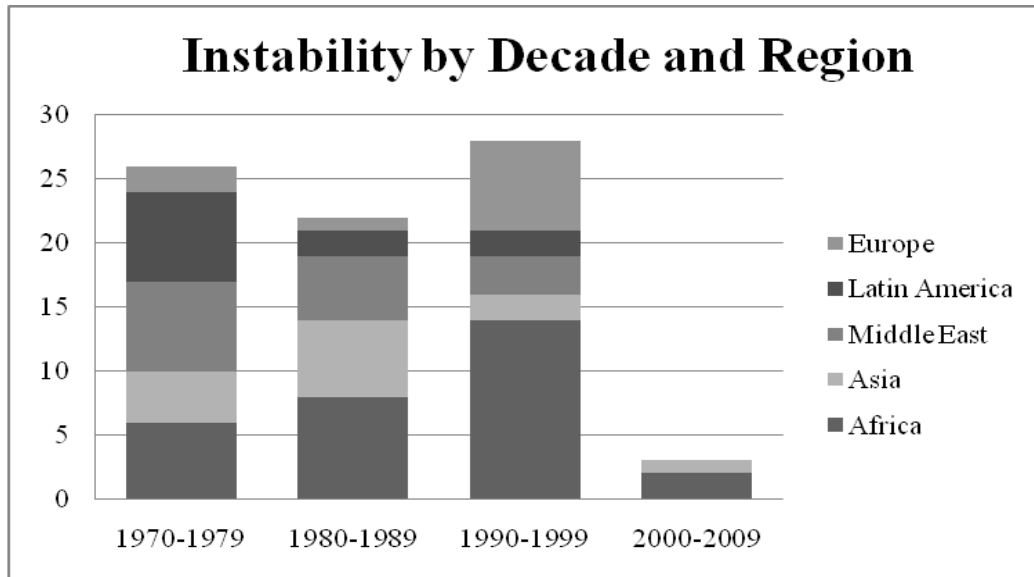
Results

Descriptive Statistics

Graph 1 presents the breakdown of all instable countries included in the analysis. Between 1970 and 2008, a total of 79 cases of instability were included. Regional analysis shows that 26 of these cases occurred between 1970 and 1979, with the highest proportion in Latin America and the Middle East (7 cases each) and Africa (6 cases). Between 1980 and 1989, 22 cases were identified. The highest proportion of cases were in Africa (8 cases). Between 1990 and 1999, 28 instances of instability occurred, with the 50% percent occurring in Africa (14 cases). Between 2000 and 2009, only three cases where registered, two of which were in Africa.

Of the 79 total cases of instability, the largest proportion of cases were classified as *Civil War* (48 cases) or *Adverse Regime Change* (28 cases). A total of 39 of the

conflict cases were classified as ‘*Complex*’, meaning the behavior of the conflict observed had mixture of several conflict classifications.



Graph 1: Regional representation of instability cases by Decade

Table 1 shows the descriptive statistics for the newly constructed variable of *Oil Rents Per Capita*. There appears to be large dispersion in the level of oil rents in each case of instability. The regional analysis reveals high levels of oil rents in the Middle East, followed by Europe, Latin America, and Africa. When the cases were analyzed by decade, the 1990s appear to be the years in which the highest levels of oil rents were acquired. This also coincides with the largest amount of cases of instability amongst oil states. Finally, an analysis by region, instability and presence of at least .01 ton/year per capita show instability in 7 cases in Africa, 4 in Asia, 6 in Europe, 5 in Latin America and 11 in the Middle East.

Table 1: Descriptive Statistics of Oil Rents per Capita Variable (in ton/year).

Cluster	Mean <i>M</i>	Standard Deviation <i>SD</i>	Min	Max	N
Total Unstable Cases	59.4051	180.36	0	1095.24	79
Total Stable Cases	453.01	1646.91	0	11404.76	237
Unstable Cases with oil	142.21	259.13	.01	1095.24	33
Stable Cases with oil	1042.27	2378.07	.01	11404.76	103
Regional Analysis*					
Africa	15.68	65.91	0	340.16	30
Asia	1.23	2.80	0	9.02	13
Europe	71.98	134.57	0	369.21	10
Latin America	24.82	45.94	0	141.94	11
Middle East	214.78	353.71	0	1095.24	15
By Decade ¹					
1968-1981	33.38	121.85	0	595.35	26
1978-1991	67.46	190.34	0	878.34	22
1988-2001	83.48	224.43	0	1095.24	28
2001-2009	1.23	2.14	0	3.72	3
Total Cases	354.61	1438.50	0	11404.76	316

* Only the regional analysis included all cases of instability (with and without oil).

¹ The decade analysis was adjusted to reflect the data collection method. For each case of instability, data was collected from two years prior. Therefore, oil rents from a case of instability starting in 1980, are actually the oil rents of 1978, and conflicts from 1991 have oil data from 1989, etc.

Model Performance: Results of Conditional Logistic Regression

Three regression analyses were conducted, and are presented in Tables 2, 3 and 4. Table 2 shows the original results from the Goldstone et al's (2010) model (Model 1), Table 3 presents the results from the Goldstone et al (2010) model with the revised sample size (Model 2), and Table 4 presents results of the model when the Oil variable was included (Model 3).

Table 2: Model 1 Results of PITF Model for Predicting Instability Original Sample Size.

Independent Variables	Coefficient	Standard Error	Odds Ratio	Confidence Interval
<i>Regime Type(Full autocracy as reference)</i>				
:				
Partial Autocracy	2.04*	.474	7.71	1.11-2.97
Partial Democracy with factionalism	4.11*	.559	60.84	3.01- 5.29
Partial Democracy without factionalism	1.77**	.559	5.85	.67-2.86
Full Democracy	1.37***	.654	3.92	.085-2.65
Transition	2.31*	.823	10.05	.69- 3.92
Infant Mortality Rate	1.40*	.348	4.07	.72- 2.09
Neighborhood	2.84*	.7000	17.15	1.47- 4.22
State Led Discrimination	0.63***	.287	1.89	.07- 1.20
Pseudo r2	.04365			
Total Number of cases	468 (117, 351)			
Conflict Cases properly Identified	82.1%			
Stable Cases properly Identified	81.5%			

* Significant at the .001 level ** Significant at the .01 level *** Significant at the .05 level

The difference in the model fit between Goldstone et al's (2010) original sample size, and the reduced sample size differed slightly. The largest difference that occurred was the rise in the odds ratio for states classified as *Partial Democracy with Factionalism*. The change in all other variables was marginal.

Results from Model 3 include a measure of logged *Oil Rents Per Capita* and are presented in Table 3. *Oil rent per capita* was significant at the .01 level, an odds of ratio

of .76 that state with high oil rents will be classified as conflict rather than stable. This supports hypothesis one, as there was a significant effect of oil rents in the model

Table 3: Model 1 Results of PITF Model for Predicting Instability Revised Sample Size.

Independent Variables	Coefficient	Standard Error	Odds Ratio	Confidence Interval
<i>Regime Type(Full autocracy as reference)</i>				
Partial Autocracy	1.87**	.69	6.51016	(.512, 3.23)
Partial Democracy with factionalism	5.49*	1.03	243.4413	(3.46, 7.52)
Partial Democracy without factionalism	2.25***	.79	9.488571	(.69, 3.80)
Full Democracy	1.86***	.91	6.456317	(.086, 3.64)
Transition	2.63***	1.23	13.98929	(.21, 5.06)
Infant Mortality Rate	1.76*	.48	5.818427	(.81, 2.72)
Neighborhood	2.95*	.81	19.1813	(1.36, 4.54)
State Led Discrimination	.78***	.38	2.180218	(.03, 1.52)
Pseudo r2	.5013			
Total Number of cases	316 (79, 117)			
Conflict Cases properly Identified	66 or 83.5%			
Stable Cases properly Identified	195 or 83.5%			

* Significant at the .001 level ** Significant at the .01 level *** Significant at the .05 level

The coefficient was negative in the equation, indicating that lower values of *Oil Rent per Capita* increased the odds of being classified as a conflict state by .76, or a percentage change of 24%. A 10% increase in oil rents decreased the risk of conflict by 1%, with a percentage change of 25%. Although significant, the odds ratio was small compared to all other variables.

The four original variables remained significant. A state classified, as a *partial democracy with factionalism* was 400 more times likely to be classified as a conflict state compared to a *full autocracy*. This represents a 43002.1% change compared to states not classified as such. *Transition* states were over 30 times more likely, representing an

percentage change in odds of 3242.3%. Being situated in a bad *neighborhood*, increased odds ratio by 23, or a percentage change of 2201.6%.

Table 4: Model 2 Results of PITF Model for Predicting Instability Revised Sample Size and Oil Rent Measure.¹

Independent Variables	Coefficient	Standard Error	Odds Ratio	Confidence Interval
<i>Regime Type(Full autocracy as reference)</i>				
Partial Autocracy	1.67***	.72	5.32	.25-3.08
Partial Democracy with factionalism	6.06*	.0	431.02	3.61-8.51
Partial Democracy without factionalism	2.11**	.80	8.25	.55-3.67
Full Democracy	1.53	.92	4.65	-.026-3.34
Transition	3.51***	1.44	33.422	.67-6.34
Infant Mortality Rate	1.62*	.48	5.07	.68-2.56
Neighborhood	3.13*	.82	23.01	1.52-4.75
State Led Discrimination	.85***	.41	2.35	.04-1.67
Oil Rent Per Capita	-.27**	.104	.76	-.48- -.069
Pseudo r2	.5385			
Total Number of cases	316 (79, 117)			
Conflict Cases properly Identified	65 or 82.27%			
Stable Cases properly Identified	195 or 82.27%			
Cut off Score	.232			

* Significant at the .001 level ** Significant at the .01 level *** Significant at the .05 level

The models' forecasting ability was no different between Model 1 and Model 2, both scoring 83% in accuracy for conflict and non-conflict states. The forecasting accuracy of Model 3 did not improve with the inclusion of *Oil Rents Per Capita*. Although still achieving a high accuracy of 82%, it misclassified 14 conflict states as stable and 42 stable states as unstable, compared to 13 and 39 that Model 1 and Model 2 misplaced. This counters the hypothesis two, indicating that including a revised variable for *Oil Rents Per Capita* do not improve the model's ability to correctly classify stable and unstable states.

Discussion

Significance of Oil Rents

The results of the updated model indicated that *Oil Rents Per Capita* was a significant factor in classifying conflict. The direction of this relationship indicates a unit increase in *Oil Rents Per Capita* decreases the probability of a state being classified as a 'conflict state'. Researchers such as Humphreys (2005) and Ross (2006) counter this; however these findings are supported by Smith (2004). Smith (2004) found that oil wealth on average increase the odds of regime durability and was significantly related to stability and lower levels of civil war. There are several additional reasons for why higher oil rents decreased the likelihood of being classified as a conflict case. These include regional aspects such as the prevalence of stable, high oil rent, regimes in the Middle East, the rentier effect and the methodological approach used in this study.

The Case of the Middle East

Regional analysis of the data set shows that average oil rents in the Middle East were over \$230 per person. This is substantially larger than any other region with the next closest region being Europe with averages of \$71 per person. They also have relatively low cases of conflict (a total of 15 out of 70). Because 64 of the cases of instability in the study have much lower rent per capita figures compared to the Middle East, it would make sense then that smaller oil rents were associated with higher risk of conflict. To test the impact of Middle Eastern countries, the model was rerun excluding all cases from the Middle East. There was a slight reduction in the odds ratio from .79 to .65, however, *Oil Rent per Capita* remained significant. Restricting the range of cases to include only the

Middle East resulted in an insignificant oil rent per capita variable. This indicates that the risk for conflict in this region does not seem to be related to the amount of oil per capita in the country, given all other stable countries in the region with comparable levels of oil rents.

The Rentier Effect

The fact that high oil rents are associated with lower risk of conflict may also be a reflection of the rentier effect that is prevalent in many high oil rent countries. According to Renner (2002), the social cleavages in these states are engineered by systems of patronage and cronyism. These networks reinforce “traditional segmentary politics and kin groups” (Luciani 1990:77). As a result, the relationships that are fostered may actually serve as stabilizers of the regime (Hertog 2005). Similarly, Ross (2001) has argued that oil wealth and autocratic regime survival is the result of increased development and expansion of internal security apparatuses, also serving as a stabilizer for countries with high oil rents.

Methodological Approach

The use of control cases in this methodological approach maybe an additional explanation for why higher rents were associated with a reduced risk for conflict. The average rents across control cases were almost double of those in the conflict group. This indicates that stable countries had on average higher oil rents right from the beginning. The use of control variables is not prevalent in many of the studies that focus on natural resources and conflict. However, the benefit of these controls is that one can compare potential characteristics with both stable and unstable states. If oil is prevalent in stable

and conflict cases, then one may conclude that oil itself is not the causal mechanism in conflict. Other mechanisms must be at play. For example, many have pointed to the role of political institutions and elite behaviors towards oil rents that enhance or thwart state stability (Sambanis 2005; Dunning 2005). To further disentangle this, it might be worth developing measures of institutional quality vis-à-vis oil wealth and testing the measure between stable and unstable states.

Improvements to the Forecasting Ability?

Although the new resource dependency variable did reach significance in the model, it failed to improve the model's forecasting ability. This means that the significance of the variable was not large enough to have an effect on the overall outcome. In Goldstone et al's (2010) original model, several variables that achieved significance, did not improve the models' forecasting ability. The significant oil variable, coupled with its insignificant forecasting effect, fits well with this trend. Several explanations for this finding can be proposed, including the nexus between oil rents and political institutions, the impact of international actors in oil states, and the construction and significance of the oil rent variable itself.

Oil and Political Institutions

Examining the relationship between oil rents and political institutions is one area for understanding the lack of improvements to the model. If oil does not improve the forecasting ability, it may be because oil acts like a catalyst for internal conflict and not necessarily a direct determinant of internal conflict. Research in this area is focused on the theory that the relationship between oil rent and conflict is dependant on the level of

development or ‘quality of institutions’ in a given country. Many in the field, including Kolstad and Wiig (2009), argue that institutional development of a state that what creates successful resource rich states. The way this model is designed, there is no direct measure of institutional design or effectiveness, so the impact of rent may not have been fully captured. This could be a reason for the insignificant result.

International Actors

The impact of international actors in the relationship between resource wealth and stability is a second source of explanation. This is especially so in the case of oil, where the interests of external actors may play a role in stabilizing (or destabilizing) a country. For example, Chinese investment in Sudan’s oil industry has not only allowed for the development of the extraction industry, but these investments have also translated Chinese support for the stability of the Al Bashir regime (BBC 2007).⁸

The Oil Rent Measure Construction

A final explanation for the lack of improvement in the forecasting effect may be found by looking at the oil rent per capita measure itself. When constructed, the oil rent variable takes into consideration the cost of production; however, these costs do not necessarily reflect the ease of extraction, the geographical location of the oil in the country, or the human and physical infrastructure of a particular state’s oil industry. Two states with the same level of oil profits does not necessarily mean that their costs or ease of extraction were the same (Kolstad and Wiig 2009). The unit cost of production could also be subtly reflecting other descriptors of the state, such as the level of knowledge,

⁸ The Chinese government has used their veto to block sanctions against Sudan in the United Nations Security Council.

organization and human and physical capital invested in the industry. In this case, there could be a relationship between the ease of extraction and propensity conflicts, similar to differences between kimberlite and alluvial diamonds and conflict (see Olsson 2006). This type of distinction could be made between difference types of oil as well.

Additional Notable Findings: Regime Type

Although the oil predictor variable had a marginal, but significant, effect on risk of conflict, the change in the regime type coefficients in Model 3 is worth noting. The impact on regime type shows that compared to *autocratic regimes* (used as the reference category), *partial democracies with factionalism* and *transition* states were more likely to be classified as conflict states. The odds of conflict for states classified as *partial democracy with factionalism* more than doubled when the oil variable was included. There was no significant difference between democracies, while risk of conflict was 8 times greater for *transition states* compared to fully autocratic states. The Polity IV users manual describes factionalism as “Polities with parochial or ethnic-based political factions that regularly compete for political influence in order to promote particularist agendas and favor group members to the detriment of common, secular, or cross-cutting agendas.” (Marshall 2010:27). Given this, it is not difficult to infer that this type of polarization would have a higher probability for conflict.

In the original study, Goldstone et al (2010) tested the claim that the factional measures for political regime type from the Polity dataset were not valid because part of the factionalist measure included small scale conflicts. Addressing critics, Goldstone et al (2010) applied post-hoc tests incorporating this criticism and found that the factional measures were still highly significant. Although the tests supported the measurement of

factionalism, it still does not discount the logical inference that factional, polarized states are less stable because of the polarization effect of its rulers who may govern in a combative rather than cooperative manner. If the polarization effect persists, it may also trickle down to the wider population.

Looking more closely at the variable in question, of the 79 conflict cases in the model, there were a total of 28 countries classified that fell into the *partial democracy with factionalism* category. Of these cases, 12 were in Africa, double the amount than any other region. When looking at the stable African controls, only one country was classified as a *partial democracy with factionalism*. This could explain the large coefficients. To confirm this, the model was re-run with just African cases (and their controls). Results indicated that the odds ratio of countries classified as a *partial democratic with factionalism* jumped by over 6 billion percent compared to cases of *full autocracy*, indicating a high probability for conflict if this characteristic is present in the country. There are many explanations for why this may have occurred at such a high rate in Africa especially when examining the nature of political behaviors in the region. According to Spears, (2010:11),

“...African leaders are adept at forging inclusive coalitions amongst key ethnic groups. After all, most African regimes are built on complex patronage networks which include representation from different clans and different groups...such coalitions may be regarded unfavorably and rejected by at least some local disputants because they are seen more for serving the purpose of domination rather than integration and reconciliation.” (Pp. 11-12).

If the regimes are built and sustained on highly polarized and identity based coalition governments, then any form of political, social or economic turbulence may result in a breakdown of these fragile coalitions. This breakdown may then

result in the forms of instability captured in this study. This could also explain why the odds of conflict in Africa increased so substantially. In addition, factions based on ethnicity and group ties may be the result of various insecurities on the part of political and ethnic groups who wish to maintain some element of representation in the political spectrum. If groups do not have representation in the political arena it would be more likely that they would take up arms because their opportunity costs would be far less.

Limitations

The results of this study have indicated a weak relationship between oil rents and instability. However, several limitations present should be discussed. Firstly, using *Oil Rents per Capita* gives an absolute number related to oil wealth; it does not give any indication of how the rents are used within the country nor can it discriminate between oil rich countries that are stable because of the other factors. This issue has caused serious overlap and contradictions in the literature. Indeed, high oil rents may offer a large opportunity for rebels or insurgents to either capture the state itself, or instigate conflict in order to gain more of the profits from the sale of oil. This would make the measure fit with proponents of the greed hypothesis. Oil wealth can also be a proxy for grievance. This is because the inequality of the distribution of oil wealth profits within a state is what sparks conflict (such as the case of Sudan in 1983). Still, a blend of both greed and grievance is possible if a conflict starts with a grievance and is sustained by greed, or vice versa (such as the case of Sierra Leone).

A second methodological limitation in this study is the inability to capture commodities traded on the black market or resource theft. This creates the potential for

underestimating the effects and importance of natural resources in the political, social, formal and informal economic ties of the state. Resource theft will reduce the recorded rents from the state treasury, but could simultaneously increase conflict by creating and sustaining wealth and power to rebel groups. This is not controlled for in this model. The amount of oil that is stolen through oil bunkering in the Niger Delta is a case in point. In this region, oil theft has been estimated to be as much as 500 000 barrels a day (Shaxson 2009). If this were to be incorporated into the data used for this project, it would translate into an additional 7 dollars per ton per capita, representing a 10% increase in oil rents.

A third methodological limitation is the fact that the data used in this project is not time-series; this means that it is impossible to measure the effects of a change in one independent variable. It could be hypothesized that a large change in oil rents, rather than the profit itself, maybe more detrimental to stability because of the change in social, political or economic relations in a country. For example, an increase in oil rents may cause some to opt for more control and access to the newly found wealth, especially in the cases of states with fragile government and social institutions. By contrast, a decrease in oil rents in autocratic states may prove to be detrimental to the stability of a regime. This is even more compelling if the regime was built and maintained using large-scale state investments in internal security and patronage networks that the state can no longer afford to maintain. The way the variable is measured now cannot discriminate these issues. Therefore, the relationship between oil and conflict may be better captured if the proxy measured a *change* in oil rents, rather than oil rents themselves.

A final limitation in this study is related to the type of data used. This study used aggregate data collected from conflict and stable states. Analysis using this type of data is

useful to uncover general patterns in understanding state instability and can be useful in early stages of research. However aggregate data may overinflate relationships between variables and should not be used for making assumptions regarding a particular states' behavior, including why a particular state may have experienced instability. If individual assumptions are made, one risks committing what is known as the ecological fallacy, or overestimating the relationship between conflict and indicator variables when applied at the individual or case level. This underscores the importance of ensuring that appropriate individual case studies are conducted to support general findings, especially when developing targeted policy interventions. (See Landman 2008 for a discussion of data cautions to be mindful of when comparing countries).

Conclusion

The purpose of this research paper was to test the effects of oil rents on a previously published model for predicting political instability. It was hypothesized that the including this updated variable would result in a oil rents being a significant factor in predicting instability, and that oil rents would improve the forecasting ability of this model. It was discovered that *Oil Rents per Capita* was a significant predictor, but it failed to improve the classification of conflict and stable states.

This supports research conducted by Smith (2004), but counters research presented by both Ross (2006) and Humphreys (2005) who showed that oil rents were significantly related to civil war. The measure of oil rents was intended to capture the opportunity costs, and subsequent incentives for, state capture. The rational behind this is that greedy rebels may take up arms to gain control over the resources to obtain the profits. This is a conclusion that is supported in the literature presented. High oil rents

seem to be associated with stability, supporting the rentier state thesis advocated by Middle Eastern scholars who have examined how oil rich states use income to maintain order. This is also a reflection of how the institutions are developed and how social, economic and political benefits are dispersed within the country. The interpretation of these findings leads one to believe that perhaps it is not the value of the oil itself but maybe the level of institutional development vis-à-vis the oil industry that may better predict instability. This hypothesis is supported by Fearon (2005), Eigen (2005) and Fish (2005).

Additional notable findings were related to the odds of instability of states characterized as partially democratic but with factionalism. The over representation of African cases in this classification is also worth noting. While some may argue that highly polarized political governance is actually the beginning of a conflict itself, looking at how political actors emerge in the African context provides some evidence as to why factionalism is a strong predictor in this region. Indeed, if political organization is based on identity and ethnic association, then it is highly probable that the coalitions between various political parties would be sensitive to any form of turbulence that may lead to large-scale instability.

Future Research Avenues

While literature supporting conflict and resource dependence all provide ample support for classifying oil as a cause for instability, testing this variable directly did not seem to have a large effect on predicting instability onset. As such, additional research associated with oil measures should consider how oil affects the social, political and economic institutions in a country rather than simply focusing on the amount of oil itself.

The methodological limitations regarding the construction of the oil rent variable and the choice of data employed merits additional research. Many have argued that the most appropriate means of testing the effects of oil profits is to test it directly using oil rents, not by using ratios of resource to other economic indicators. Using the *Oil Rents per Capita* scores do not give enough specification on the importance of oil in the country. The costs of oil extraction do not necessarily reflect the geographic location, ease of extraction, the amount of human and industrial capital required for extraction, the level of state involvement in the industry, or the importance of oil in providing state benefits. As a result, it may be worthwhile developing measures to reflect these issues. For example, future research to construct an oil rent variable incorporating a measure of average income levels in the country. This reflects both the wealth garnered by natural resources as well as the distribution of this wealth within the population. If the outcome variable is high it would mean that there is a large discrepancy between oil rent countries with low income per capita. By contrast, if the outcome is low, it means that the gap between oil rents and income per capita is smaller, indicating that some sort of distributional policies are employed. This type of measure may also give an indication of the quality of economic and societal institutions in handling the wealth of the resource itself, or at least give some sort of indication on how the profits from oil rents are being used in the country.

For reasons previously discussed, the second methodological limitation with this data is that it cannot capture the effects of a change in oil rents, something that may actually give a better indication for instability. The current approach measured oil wealth two years before the year of instability; however, future researchers may wish to test the

effects of a change in oil rents. This can be accomplished by measuring the change between two points of time and use the difference for measuring the impact of oil wealth.

Finally, understanding how, and in what circumstances, states develop factional tendencies may reveal more about how they develop and how those circumstances may be avoided. For example, it may be beneficial to classify regime characteristics by the type of political organs of the state, the type of electoral system employed and the strength of each organ of the state. Comparing the political organization in post communist states, Fish (2006) found that strong legislatures that strengthen horizontal and vertical accountability provided the link to strong stable democracies compared to countries with concentrated powers in the presidency that remain stagnant in their democratic development. Models of political governance that support power-sharing agreements have been applied in many divided societies. These types of agreements guarantee some form of political representation of groups within a society. Removing insecurities related to access to government power might encourage cooperation in policymaking and governance. This interaction through cooperation may then reduce the polarization of groups in a society.

Policy Recommendations

Isolating various political, economic and social characteristics of states that are prone to conflict represents an opportunity for innovative, targeted policy approaches. Although the findings of this paper suggest that oil rents may not be a direct factor in predicting instability, given the inconsistency of measures in this field, it would be

prudent not to ignore research that has countered these findings. If oil profits are a part of any conflict, they must take into consideration to stop the conflict, and make adequate changes to mitigate future conflict. Current policies directly targeted at resource abundant, weak states aim to bolster governance in the resource sector of a specific country (see the Norwegian Oil for Development program). While this has merit, criticism of this include the fact that these policies strengthen one aspect of the governance in a country, but do not address the undercutting problem of allocating resource rents more equitably (Kolstad and Wiig 2009). It also creates a horizontal disequilibrium between oil infrastructure and institutions in a country and the political institutions of a country (Karl 1999). Formal avenues used to appease resource conflicts have also focused on ownership and allocation policies that become entrenched in formal state documents such as a constitution and formal legal frameworks. The reasoning behind this approach has been to create a legal entitlement to the profits from resources to the wider population of the state. However, as the case with Sudan's oil management, the legal entitlements may not have enough weight to change actions of elites. This action comes from further divulging into how state institutions are developed and managed. Refocusing the problem not on the profits themselves, but ways in which states can adopt management structures may be a better way of addressing this problem. This is particularly true in post conflict or developing states that tend to be more malleable to political and economic reforms.

One policy option is to encourage joint extraction initiatives through public private partnerships. This may bolster oil transparency and the development of institutions in a oil wealth country believed to be the culprit in the resource curse debate.

This would require cooperation between government and private actors that simultaneously strengthens private and public sector institutional development in the country. This type of approach could then feed into the ‘publish what you pay’ movement already put in place that encourages fiscal transparency and accountability on the part of government leaders and elites who manage the profits of natural resource sectors.

The Chad Cameroon Petroleum Development and Pipeline Project is an example of such. It is the largest private public partnership program in Africa’s oil industry it is designed to tap oil reserves in Chad and transport to the coast through Cameroon. The approach of the project was targeted specifically to avoid problems of corruption and profiteering that is typical of developing countries with profits from the resource sector using the Revenue Management Plan agreed to by all parties (Keenan 2005). Indeed, the design of the project went beyond the development of the oil industry itself by incorporating specific program elements targeting corruption, poverty eradication and improved macro economic development of both countries. Key actors in this partnership include the World Bank, Exxon Mobil and the governments of Chad and Cameroon who designed policies to ensure that the oil rents are managed effectively to avoid turbulence and conflict in the country, including bolstering institutional capacity in the country.

According to Pegg (2005) the project itself was a precedent-setting endeavor, especially as they targeted development that goes beyond the oil sector. There remains substantial room for improvement, especially in ensuring areas that are directly associated with the pipeline project receive adequate attention. For example, a portion of oil profits was allocated towards the eradication of poverty in Chad. Projects associated with improving institutional capacity of the country to eradicate poverty fell behind those

that specifically were targeted at oil extraction. Regardless of this, the nature of this public private partnership does offer a model for how oil development and extraction can be paired with social and political development aimed to thwart the adverse effects of substantial amounts of oil wealth.

The prevalence of conflict in factional states also merits some policy discussion. To develop the appropriate tools for mitigating factional tendencies the first step is to understand the root causes of the group polarization, and how these are manifested within the political atmosphere of the country. If the factionalism is rooted along regional lines, bolstering the vertical relationship between various levels of government may be an appropriate solution because power can be shared across various levels of government. If factional tendencies are rooted along ethnic or tribal lines, a different policy approach is required. If the intent is to encourage cooperation between groups in the political spectrum and these groups are based on rigid ethnic identities, adopting a form of guaranteed representation or consociationalism may offer a solution especially in the case of states that have well defined tribal groups (Lijphart 1969; Jabbra and Jabbra 2002). This would remove the insecurity of disfranchisement of certain groups in a country. In addition, if rebel groups had some element of representation and a share of control of the state apparatuses, it may reduce the opportunity costs for further rebellion.

Some warn that power-sharing approaches in post conflict context are more difficult to ascertain because threats that caused the conflict itself are internal (Spears 2002) Because of this, it will be more difficult to persuade former enemies to share power (Spears 2002). Although Spears (2002) gives a grim outlook of power-sharing in the African case, he does not discount it completely; sighting that cooperation among elites

through power sharing could actually promote stability, cooperation and political socialization in a given country. His warning is primarily related to understanding the underlying interests of governing elites. Regardless of the final power sharing agreement, these interests must be taken into consideration for any form of cooperative political order to occur.

A method to foster cooperation and depolarization in electoral politics among elites could support preferential electoral systems (Reilly 2002). This would require political and tribal elites to extend their traditional support networks, reaching out to the wider population. A single transferable vote electoral system is an example of this. In the STV, the electorate ranks all candidates from all ethnic or tribal groups based on their personal preferences. Ballots are counted based on quotas achieved and these quotas can be based on proportional representation in any facet (population, ethnicity, etc). Candidates with the lowest votes (based on their specific quota) are removed first, and their second and third preferences are transferred to their next candidate. When a candidate achieves the quota required to be elected, the second or third preference from additional votes (beyond the surplus) are also transferred. The process continues until all seats are allocated. This type of electoral system would encourage politicians to extend campaigns beyond traditional ethnic or tribal lines in order to gain second and third rankings from other ethnic groups.

The present research has shown that oil wealth may not play a direct role in causing instability, but rather oil influences other areas of social, economic and political development in a country. It has also shown that factional political development in a country has a large impact on the probability for instability. Public-Private partnerships,

guaranteed representation, and creative electoral systems are examples of how these findings can be applied at the field level. Only a small fraction of the potential for innovated and targeted policy options to mitigate some of the root causes of instability is represented here.

Bibliography

- Agresti, A. (1996). *An introduction to categorical data analysis*. John Wiley & Sons: New York.
- Azam, J. (2001). The redistributive state and conflicts in Africa. *Journal of Peace Research*, 38, pp. 429-444.
- Ballentine, K. (2003). Beyond greed and grievance: reconsidering the economic dynamics of armed conflict. In *The Political Economy of Armed Conflict Beyond Greed and Grievance*. By Karen Ballentine and Jake Sherman (eds.). International Peace Academy. Boulder: Lynne Rienner Publications. Pp. 259-283.
- BBC. (2007). Chinese leader boosts Sudan ties. *BBC News*. Friday, 2 February 2007. Accessed on September 30th from <http://news.bbc.co.uk/2/hi/6323017.stm>.
- Beblawi, H. (1987) "The Rentier State in the Arab World". In *The Rentier State*, ed. Beblawi and Luciani. Kent: Croomheld.
- British Petroleum (2010). *Statistical Review of World Energy*. Accessed on July 12th from <http://www.bp.com/multipleimagesection.do?categoryId=6840&contentId=702155>

- Collier, P. (2000). *Economic causes of civil conflict and their implications for policy*. Washington, DC: World Bank.
- Collier, P., Elliot, V., Hegre, H., Hoeffler, A, Reynal-Querol, M., & Sambanis, N. (2003) *Breaking the Conflict Trap : Civil war and Development Policy*. Washington: World Bank Publications.
- Collier, P. & Hoeffler, A. (1999). Justice-seeking and loot seeking in civil war. Revised February 17th 1999. Accessed on September 27, 2010, from <http://siteresources.worldbank.org/INTKNOWLEDGEFORCHANGE/Resources/491519-1199818447826/28151.pdf> .
- Collier, P. & Hoeffler, A. (2000). Greed and grievance in civil war. Policy Research Working Paper 2355. World Bank Development Research Group. Accessed on September 27, 2010 from http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2000/06/17/000094946_00060205420011/Rendered/PDF/multi_page.pdf
- Collier, P. & Hoeffler, A. (2002) Greed and grievance in civil wars. Working paper series 2002-01. Centre for the Study of African Economies.
- Collier, P. & Hoeffler, A. (2004). Greed and grievance in civil war. *Oxford Economic Papers* 56. pp 563- 595.
- Collier, P. & Hoeffler, A. (2005). Resource Rents, Governance and Conflict. *The Journal of Conflict Resolution*, 49, pp.625-633.
- Collier, P. & Hoeffler, A., Rohner, D. (2009). Beyond greed and grievance: feasibility and civil war. *Oxford Economic Papers* 61, pp 1-27.
- Cramer, C. (2007). *Violence in Developing Countries: War, Memory, Progress*. Bloomington: Indiana University Press.
- Dunning, T. (2005). Resource dependence, economic performance, and political stability. *Journal of Conflict Resolution*, 49. Pp. 451-482.
- Dunning, T. (2008). *Crude democracy : Natural resource wealth and political regimes*. Cambridge: Cambridge University Press
- Eigen, P. (2005). "Avoiding the Resource Curse: What can we learn from the case of Botswana. *Transparency International*, Accessed on November 20, 2009 from: http://eadi.org/gc2005/confweb/papersps/Peter_Eigen.pdf
- Elbadawi, I & Sambanis, N. (2002). How much war will we see?: Explaining the prevalence of civil war. *Journal of Conflict Resolution*, 46, pp. 307-334.

- Esty, D., J. Goldstone, T. Gurr, B. Harff, M. Levy, G. Dabelko, P. Surko & A. Unger. (1998). State Failure Task Force Report: Phase II Findings. McLean, VA: Science Applications International Corporation. Accessed on September 23, 2010 from <https://wilsoncenter.org/events/docs/Phase2.pdf>
- Fearon, J. (2005). Primary commodity exports and civil war. *The Journal of Conflict Resolution*, 49, pp. 483-507.
- Fearon, J. & Laitin, D. (2003). Ethnicity, insurgency, and civil war. *American Political Science Review* 97, pp. 75–90.
- Fish, S. (2005). *Democracy Derailed in Russia*. New York: Cambridge University Press.
- Fish, M. (2006). Stronger Legislatures, Stronger Democracies *Journal of Democracy*, 17 pp. 5-20.
- Goldstone et al (2005). “A Global Forecasting Model of Political Instability” Conference Proceedings report from the 2005 annual meeting of the American Political Science Association in Washington, DC, September 3, 2005. Accessed from Political Instability Task Force, on June 24, 2010, from <http://globalpolicy.gmu.edu/pitf/PITFglobal.pdf>
- Goldstone et al (2010). A global model for forecasting political instability. *American Journal of Political Science*, 54, Pp. 190-208.
- Hamilton, K. & Clemens, M. (1999). Genuine savings rate in developing countries. *World Bank Economic Review*, 13. Pp. 333-356.
- Harff, B. (2003). No lessons learned from the holocaust? Assessing risks of genocide and political mass murder since 1955. *American Political Science Review*, 97. Pp. 57-73.
- Hegre, H. Ellington, T., Gates, S. & Gleditch, N.P. (2001). Toward a democratic civil peace? Democracy, political change and civil war, 1812-1992. *American Political Science Review*, 95, pp. 33-48.
- Hertog, S. (2005). “Segmented Clientelism: The Political Economy of Saudi Economic Reform Efforts”. In *Saudi Arabia in the Balance: Political Economy, Society, Foreign Affairs*. New York: New York University Press. Pg. 11-143.
- Hosmer, D. & Lemeshow, S. (2000). *Applied Logistic Regression*. Toronto: John Wiley & Son. E-book.
- Humphreys, M. (2005). Natural resources, conflict, and conflict resolution. *Journal of Conflict Research*, 49, pp.508-537.

- Humphreys, M. & Weinstein, J. (2008). Who fights? *American Journal of Political Science*, 52 pp. 436-455.
- Jabbara, J. & Jabbara, N. (2002). "Consociational Democracy in Lebanon: A flawed system of governance". In *Governance and Developing Countries* by Jamil E. Jreisat (eds). Leiden:Brill. Pp. 71-90.
- Jensen, N. & Wantchekon, L (2004). Resource wealth and political regimes in Africa. *Comparative Political Studies*, 37, 7, pp. 816-841.
- Kandeh, J. (2005). The Criminalization of the RUF Insurgency in Sierra Leone. In *Rethinking the Economics of War: The Intersection of Need, Creed and Greed*. Cynthia Arnson and William Zartman (eds). Washington: Woodrow Wilson Center Press. Pp. 84-106.
- Karl, T. (1999). "Reflections on the Paradox of Plenty". *Journal of International Affairs*. 53, 1, pp. 31-38
- Keenan, J. (2005) Chad-Cameroon Oil Pipeline: World Bank & ExxonMobil in 'Last Chance Saloon. *Review of African Political Economy*, 32. pp. 395-405.
- King, G. & Zeng, L. (2001). Logistic regression in rare events data. *Political Analysis*, 9. Pp. 137-163.
- Klare, M. (2002). *Resource Wars: The New Landscape of Global Conflict*, New York: Owl Books.
- Kolstad, O. & Wiig, A. (2009). It's the rents, stupid! The political economy of the resource curse. *Energy Policy*, 37. pp.5317-5325.
- Landman, T. (2008). *Issues and Methods in Comparative Politics: An Introduction*. London: Routledge.
- Le Billon, P. (2001). "The Political Ecology of War: Natural Resources and Armed Conflicts", *Political Geography*, 20, 561-584.
- Lijphart, A. (1969). Consociational Democracy. *World Politics*, 21. pp. 207-255.
- Luciani, G. (1990). Allocative vs. Productive States: A Theoretical Frame-work . Luciani, G. (eds), *The Arab State*, Berkley: University of California Press.
- Lyons, W. (1977). Per Capita Index Construction: A Defense. In *American Journal of Political Science*, 21. 1, pp. 177-182.

- Marshall, M. & Jaggers, K. (2003). *Polity IV Project: Political Regime Characteristics and Transitions 1800-2008*. Assessed on September 23, 2010 from <http://www.systemicpeace.org/polity/polity4.htm>
- Marshall, M. (2010). Polity IV Project: Users' Manual. *Centre for Systematic Peace*. Accessed on October 8, 2010, from <http://www.systemicpeace.org/inscr/p4manualv2009.pdf>
- Minorities at Risk Project. (2002) "Minorities at Risk Dataset Users Manual 030703." College Park, MD: Center for International Development and Conflict Management. Accessed on July 14th 2010 from <http://www.cidcm.umd.edu/mar/>
- Olsson, O. (2006). Diamonds are a rebels best friend. *The World Economy* . pp. 1133-1150.
- Oxford University (2010). "11. Analysis of Case-control Studies Logistic Regression". From *Research Methods II: Multivariate Analysis. Journal of Tropical Pediatrics* PDF. Accessed on June 23rd 2010 from http://www.oxfordjournals.org/our_journals/tropej/online/ma.html
- Pegg, S. (2005). Can policy intervention beat the resource curse? Evidence from the Chad-Cameroon Pipeline Project. *African Affairs*, 105. pp. 1-25.
- Pendergast, S. Clarke, J. & Cornelis van Kooten, G. (2008). *Corruption, Development and the Curse of Natural Resources*. Resource Economics and Policy Analysis Research Group. Working Paper 2008-10.
- PITF, (2010). Political Instability Task Force: Internal Wars and Failures of Governance 1955-2008. Accessed on July 6, 2010 from <http://globalpolicy.gmu.edu/pitf/>
- Reilly, B. (2002). Electoral systems for divided societies. *Journal of Democracy*, 13, pp. 156-170.
- Ron, J. (2005). Paradigm in distress?: Primary commodities and civil war. *Journal of Conflict Resolution*, 49, 4, 443-450.
- Renner, M. (2002). "Breaking the Link Between Resources and Repression." In *State of the World 2002: A Worldwatch Institute Report on Progress Toward a Sustainability Society*, Linda Starke (eds) New York: Norton, 149-173.
- Ross, M. (2001). Does oil hinder democracy?. *World Politics* 53 pp.325-61.
- Ross, M. (2003). Oil, drugs, and diamonds: the varying roles of natural resources in civil war. In *The Political Economy of Armed Conflict Beyond Greed and Grievance*. By Karen Ballentine and Jake Sherman (eds.). International Peace Academy. Boulder: Lynne Rienner Publications. Pp. 47-70.

- Ross, M. (2006). A closer look at oil, diamonds and civil war. *Annual Review of Political Science*, 9, pp. 265-300.
- Rosser, A. (2006). The political economy of the resource curse. A literature survey. Working Paper 268, Institute of Development Studies (IDS), Centre for the Future State. Accessed on August 2, 2010 from <http://www2.ids.ac.uk/gdr/cfs/pdfs/wp268.pdf>
- Sachs, J. & Warner, A. (1995). *Natural Resource Abundance and Economic Growth* National Bureau of Economic Research NBER Working Paper No. W5398.
- Sachs, J. & Warner, A. (2001). The curse of natural resources. *European Economic Review*, 45. Pp. 827-838.
- Sambanis, N. (2005). Conclusion: Using case studies to refine and expand the theory of civil war. In P. Collier and N. Sambanis (eds). *Understanding Civil War. Evidence and Analysis. Vol 1: Africa*. Washington: World Bank pp. 303-334.
- Shaxson, N. (2009). Nigeria's extractive industries transparency initiative. Just a glorious audit? *Chatham House*. Royal Institute of International Affairs.
- Smith, B. (2004). Oil wealth and regime survival in the developing world, 1960-1999. *American Journal of Political Science*, 48, pp. 232-246.
- Spears, I. (2002). Africa: The limits of power-sharing. *Journal of Democracy*, 13, pp. 123-136.
- Spears, I. (2010). *Civil War in African States*. Boulder: Lynne Rienner.
- Stevens, P. & Dietsche, E. (2008). "Resource Curse: An analysis of causes, experiences and possible ways forward. *Energy Policy*, 36, pp. 56-65.
- Victor, D. (2007). What resource wars? *The National Interest*, 92, pp. 48-55.
- World Bank (2010). 'Oil and Gas Rents: 1970-2008' World Bank Environment Data and Statistics retrieved on June 25, 2010, from <http://go.worldbank.org/OV4R25M150> cite last updated on May 28, 2010.