

Ownership of Resource Extraction and Violence

*How private versus state-owned resource extraction effects the
severity of violence*

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Abstract

The relationship between natural resources and conflict has been extensively scrutinised in the field of peace and conflict studies. However, the effect of the ownership structure of resource extraction on violence requires further investigation. This thesis aims to describe the relationship between private and state-owned resource extraction and the severity of violence that states experience in Africa and Latin America 1989-2014. I argue that the ownership of resource extraction is significant because potential rebel groups will commit to the most effective and feasible strategy of violence depending on the anticipated response from the government and extraction company. When resource extraction is privately owned, rebel groups will use low-level violence, whereas, when resource extraction is state-owned, rebel groups are more likely to initiate high-level violence and civil war. These conjectures are tested with a quantitative logistic regression analysis of the relationship between ownership of extraction and violence severity. I have collected original data on the ownership of mineral and oil and gas extraction projects for these countries 1989-2014. The results suggest when resource extraction is privately owned the likelihood of higher levels of violence decreases, and when resource extraction is state-owned the likelihood of higher levels of violence increases.

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1. Introduction

For centuries the world has been plagued by conflict. In the field of peace and conflict studies, scholars endeavour to understand what exacerbates violence and causes conflict to occur. One school of peace and conflict studies, working alongside political, economic and social science scholars, concentrates on the relationship between natural resources and conflict. Natural resources are a source of riches, the control and ownership of which is often at the centre of the resource conflict debate. Natural resources have been under the control of governments, international corporations, small companies, local councils and individuals. This thesis aims to describe the relationship between private and state-ownership of natural resources, particularly the extraction of high-valuable resources, and the severity of violence states may experience – with particular reference to Africa and Latin America 1989-2014.

The problem

There is a substantial body of literature that addresses resource abundance and resource governance, and how these factors can contribute to the onset of violence. Peace and conflict scholars, when investigating the causes of conflict initially concluded that poor and underdeveloped states were more prone to conflict, compared to rich and developed states (Mac Ginty & Williams, 2009). However, scholars observed that some states have abundant natural resources that should contribute to state wealth and development yet remain poor and continue to foster violence and conflict (Macartan Humphreys, 2005). The phenomenon, labelled the 'resource curse', suggests that states remain poor and plagued by violence because they have a limited state capacity that cannot effectively govern high-value natural resources (Collier & Hoeffler, 2012). Therefore, scholars have since investigated the 'resource curse' vigorously, by analysing what factors and contexts associated with natural resources contribute to violence escalation.

Research suggests that effective governance of natural resources is essential to ensure that the wealth associated with its extraction is redistributed in a manner

that fosters prosperous and peaceful societies. However, this is not always the case in reality, as shown by the number of violent conflicts that occur in resource rich states. States, for example the Republic of Congo, that have abundant natural resources being extracted, but that have weak and corrupt governance systems, tend to be more prone to conflict than resource rich states with strong accountable governance systems (Indra De Soysa & Neumayer, 2007; Englebert & Ron, 2004). Resource-conflict scholars suggest that a strong state capacity, with effective, transparent and accountable management systems, is required to ensure that revenue associated with resource extraction is redistributed fairly and effectively (Indra De Soysa & Neumayer, 2007; Fearon & Laitin, 2003; V Koubi & Bohmelt, 2013). A strong state capacity reduces the likelihood of marginalisation within the population and minimises the prospects of violence inducing behaviour.

Natural resources are important for explaining the behaviour of non-state groups as well as state groups, particular, the wealth associated with natural resources. In addition to investigating the state's ability to distribute resource wealth, the role of resource wealth in the hands of individuals and non-political groups is important in the analysis of resources and violence. Some natural resources are easily accessed and exploited, resources such as alluvial gold and diamonds, compared to resources such as oil and copper which are not as easy to access and exploit. 'Lootable' resources have been known to contribute to violence, and sustaining resource wars (P Lujala, Gleditsch, & Gilmore, 2005). For example, in Angola and Sierra Leone, rebel groups have used diamonds to finance and prolong conflicts (Kawamoto, 2012; M. Ross, 2006). The type of natural resources a state has is important in order to understand how they may influence society and individuals' propensity for violence (Fjelde, 2009; M. Ross, 2006; Snyder, 2006). Some forms of natural resources that are easy to exploit and use to finance rebellions may increase the likelihood of violence occurring.

The financial influence of natural resources not only impacts state capacity and rebel financing, it also influences the social and economic environment of the state. Different types of natural resources require different forms of investment and extraction methods; in particular there is a difference between extracting oil and extracting diamonds. Some resources, such as oil, coal, and copper, require capital-intensive infrastructure and technology to extract sufficient

resources to exploit (Acuña, 2015). The global trend of privatisation following the end of the Cold War meant that more countries were encouraging private and multinational corporations to invest in their industries, particularly in natural resource extraction (Acuña, 2015). This meant there were increasing numbers of outsiders participating within the natural resource sectors of developing and developed countries. Due to the specialised nature of capital-intensive natural resources, they tend to impact the state in the following ways. Capital-intensive resource extraction influences indigenous populations, in regard to land access and ownership, as well as long-term financial benefits for the government (Acuña, 2015; Gomez & Sawyers, 2012). There is the potential for indigenous populations to foster ill feelings towards companies and the government if they feel their rights are overlooked in the prospect of large profits from the exploitation of natural resources (Acuña, 2015; Altman, 2012). Therefore, the governance of resource extraction, minimising the environmental impact and maximising community involvement, is thought to be an important factor when considering the affect that resource extraction has on the onset of violence.

Arising from the body of literature discussed above, and further in the literature review chapter of this thesis, there is a gap in the knowledge of resources and conflict. The gap in the literature is in regard to how the ownership of resource extraction may influence the severity of violence a state will experience. Scholars who have investigated the relationship between natural resources and violence have only touched on how the ownership of resource extraction could influence violence and conflict onset. In particular, Tim Wegenast (2015) investigated whether ownership of oil and gas extraction had an impact on the onset of intrastate conflict (T. Wegenast, 2015). The results of Wegenast's (2015) study conclude that there is a curvilinear relationship between oil and gas production and the onset of civil conflict (T. Wegenast, 2015). Wegenast (2015) suggests that state-owned oil and gas production is more likely to encourage peace-buying mechanisms such as nepotism and coercion (T. Wegenast, 2015). Therefore, Wegenast (2015) finds that internal violence was more likely when oil and gas extraction was state-owned, and that private owned oil and gas had little to no effect on the onset of intrastate violence (T. Wegenast, 2015). The results from Wegenast's (2015) study contribute to the literature by showing that ownership does matter when investigating natural resources and violence. This thesis differs from Wegenast's (2015) study in the following ways:

(1) I operationalise ownership differently from Wegenast, I use the majority owner of production measured through the number of active operations, as opposed to majority owner of production measured through gross domestic product, (2) I look at a wider range of natural resources, to include mineral resources in addition to oil and gas, and (3) I look at the severity of violence, not just conflict onset (T. Wegenast, 2015).

Purpose of the study

This thesis aims to address the gap in the literature by examining the effect that of ownership of resources has on the severity of violence. This study will enhance the work done by Wegenast (2015) by expanding the type of resources examined to include all high-value resources, such as gold, copper, and phosphate in addition to oil and gas. I will conduct a quantitative logistic regression analysis, which will illustrate the relationship between my dependent and independent variables. The dependent variable in this study is the severity of violence, which is measured through the best estimate of fatalities, as recorded by the Uppsala Conflict Data Program's (UCDP) Georeferenced Event Dataset (Croicu & Sundberg, 2015). There are four independent variables in this study representing the types of ownership of resource extraction I am investigating; each independent variable represents private or state-owned oil and gas extraction and private or state-owned mineral extraction. This study will use the independent and dependent variables, ownership and resource extraction and the severity of violence, to investigate what the relationship looks like in Africa and Latin America 1989-2014. I am using these two continents because both regions have experienced numerous conflicts and both have an abundance of a variety of natural resources.

Theoretical framework

The theoretical framework provided in this thesis contributes to our understanding of what causes violence to occur in states with natural resource extraction. In order to develop hypotheses, a theoretical understanding of what motivates potential rebel groups to instigate violence is required. I understand the motivation of rebel groups to be a combination of grievance and opportunity. Within the established literature on resource-conflicts, scholars

have argued for the importance of grievances, opportunities and feasibility in understanding the causes of violence (Collier, Hoeffler, & Rohner, 2009). In the theory chapter of this thesis I outline each of these theories, and explain how grievance and opportunity theories contain the strongest arguments for how different ownership of resource extraction could influence potential rebels when instigating violence. I argue that potential rebel groups will decide on the most effective level of violence necessary to fulfil the group goals, depending on if the extraction is privately owned or state-owned. More specifically, I argue that when there is private owned extraction, potential rebel groups will perceive that low-level violence and extortion is the most effective course of action. Potential rebel groups will weigh up the costs and benefits associated with instigating violence against resource extraction, and how the resource extraction company is likely to respond, whether they are likely to be met with violence or concessions. I expect that when resource extraction is privately owned, the state and the extraction company is more likely to respond with negotiation and concessions, or order to minimise the impact on production, profit and reputation. In anticipation of this, potential rebel groups will initiate low-level violence because it will be the most effective strategy. Conversely, when resource extraction is state-owned, the resource extraction company is more likely to pass the costs of violence and conflict on to the state, which has the ability to absorb the costs associated with conflict and violence. Because the state has the monopoly on violence, and is most likely to respond with violent repression, potential rebel groups will prepare for high-level violence and civil war.

Research question, Hypotheses and Research Design

The primary research question used to guide this thesis is; what effect does the ownership of resource extraction have on the severity of violence states experience? Using this research question, and based from the theoretical framework outlined in the theory chapter of this thesis I formulated two hypotheses. Firstly, I hypothesise that states with privately owned extraction would be more likely to experience low-level violence and extortion from groups attempting to redress grievances. Secondly, I hypothesise that states with state-owned extraction will be more likely to experience high-level violence and civil war onset. I will test these hypotheses through a logistic

regression where the results provided will tell me the direction of the relationship between my independent variables, type of extraction ownership, and dependent variable, level of violence. From this analysis I will be able to test whether there is a positive or negative relationship between the level of violence and the type of ownership of resource extraction, and how statistically significant this correlation could be. In particular, the relationship illustrated from the analysis will show whether state-owned or privately owned resource extraction is likely to see an increase in the level of violence from low-level to high-level.

The results of this thesis tell us what effect ownership of resource extraction has on the severity of violence in Africa and Latin America 1989-2014. However, one could use the results as a base for what might happen in other states and regions, if they have similar resource extraction patterns and policies. The results produced in this study suggest private ownership of resource extraction is less likely to encourage high-level violence from potential rebel groups, and that state-owned extraction is more likely to encounter high-level violence and civil war. I also find that the relationship between ownership of resource extraction and the level of violence is particularly significant for private mineral extraction in Africa, and for oil and gas extraction in Latin America. This study provides a robust base for understanding the relationship between ownership of resource extraction and violence, and opens the pathway for further research on a global scale.

Significance of the study

This study contributes to the literature on resource-conflicts by providing an understanding of how private and state-owned extraction of high-value resources, effects the onset and severity of direct violence. Natural resources have been shown to have an impact of the onset, severity and duration of violence. The ownership of resource extraction is another potential connection between resources and violence, particularly since private ownership of natural resource extraction is increasing over time within Africa and Latin America; therefore, it is important to understand what effects this might have on peace. Policy and decision makers could use the results produced from this study when evaluating natural resource policy and the impact that natural resource

extraction can have on negative peace. The results will provide further understanding to what we already know about the causes of violence, and how communities and governments perceive the costs and benefits of resource extraction. Decision makers from extraction companies, development think tanks, and non-governmental organisations throughout the international community could utilise the results from this thesis to assist the international community's goals of eradicating direct violence and contribute to effective and inclusive development strategies.

Summary

This thesis addresses the gap in the existing resource-conflict literature, the effect that private and state-ownership of resource extraction and has on the onset and severity of violence. This thesis provides a theoretical framework on how ownership of resources and violence are correlated, and tests what the relationship looks like. The remainder of this thesis proceeds as follows. First, I will review the existing literature on resources and conflict, and outline the gap where ownership of resources could play a crucial role in the correlating violence with natural resources. Second, I will outline established theories that explore the connections between resource extraction and violence; with particular emphasis on how private and state-owned resource extraction can incite different responses from potential rebel groups, depending on the opportunities and the feasibility of violence. Third, I will explain the research design and the methodological approach taken in this thesis. Fourth, I show the results of the analysis of new data on the ownership structure of natural resource extraction in Africa and Latin America from 1989-2014. My results suggest that when resource extraction is privately owned, the risk of higher levels of violence decreases, and when resource extraction is state-owned, the risk of higher levels of conflict increases. And Finally, I will discuss the implications of the results outlined in the analysis, and suggest areas for further research within the scope of ownership of resource extraction and how it can affect the level of violence states experience.

2. Literature Review

Introduction

The end of the Cold War signalled an opening up of national economies to the international economy, contributing to an increase in multinational corporations crossing borders in search of greater economic opportunities (O'Brien & Williams, 2010). Scholars have examined economic policies in regard to conflict risk, but generally limit these to discussions on agricultural resources or foreign aid. Since the end of the Cold War, there has been an increase in large foreign corporations participating in small economies. This implies a potential change in the dominant form of the ownership of natural resource extraction from state-owned to private; the implications of this for peace are not well known. The type of resource ownership is a section of the literature on natural resources and conflict that tends to get overlooked, particularly with regard to state-owned and privately owned mineral, oil and gas extraction, and how this may affect the severity of violence countries experience.

In this chapter I will outline the literature on natural resources and internal violent conflict. I have divided the literature into two main areas of research, the literature on natural resources and conflict, and the literature on political systems and conflict. Within the first group of literature I offer an overview of the evolution of resource-conflict as a whole. Second, I introduce the 'resource curse' and state capacity literature. Third, I discuss the literature on how different types of resources affect the onset and severity of violence. I then move on to discuss how governance and political structures affect the onset of conflict, with reference to the role of natural resources. Next in this section I will outline what has been said in the literature about the ownership of resource extraction. Finally, I review the literature on managing resources post-conflict. Each section will outline the main arguments from the resource-conflict literature in order to illustrate what has already been researched, and where there remains more research to be done. This chapter concludes that there is a gap in the research where the effect of the ownership of mineral and oil and gas extraction on the onset and severity of violence has not been thoroughly investigated.

Literature on Natural Resources and Conflict

This section will outline the evolution of the resource-conflict literature. Beginning with the group of scholars who begun looking into the causes of conflict, and how natural resources emerged as a major contributor to contexts that breed violence. This section will move on to describing the resource curse, and how state capacity can create an environment where inequality is prevalent, and how this increases the likelihood of conflict. Finally in this section I will outline the literature on how resources can be used to finance wars based on the type of resource. This section of the literature review aims to provide a basic understanding of the developments of the literature on resource-conflicts and how resources and conflict intersect. This section will outline why resources are important when analysing conflict, and how resources can affect conflict onset and duration.

The Evolution of the Resource-Conflict Literature

The literature on conflict onset initially examined violent conflicts in general in an attempt to create a universal theory for conflict onset (Mac Ginty & Williams, 2009). Mac Ginty and Williams (2009) point out that there are many causes of conflict, and that 'different factors will have different weight at different stages on a conflict trajectory' (Mac Ginty & Williams, 2009). Furthermore, Fearon and Laitin (2003) and Blattman and Miguel (2010) provide an outline of their assessment of the causes of civil wars; they have categorised the causes of conflicts into political, social and economic factors, however these labels encompass a myriad of aspects that contribute to the risk of conflict onset in a given state (Blattman & Miguel, 2010; Fearon & Laitin, 2003).

A large proportion of the existing research on natural resources and conflict tends to take a political economy perspective. By examining economic factors and the type of political regime the conditions that characterise countries prone to conflict can be described (Indra De Soysa & Neumayer, 2007; P Le Billon & Cervantes, 2012). Economic factors, for example, price volatility and the openness of the economy, can make conflict more likely in countries that rely on a single source of revenue, especially if the state has an authoritarian regime (Fjelde, 2009). If the price of exports drop and the government lacks an alternative source of income, it may struggle to provide basic needs for the population, which can result in an increased risk of conflict (Ogunleye, 2008).

However, 'opinion is polarised on the role of economics in the outbreak of civil war', whether it can play a saviour or villain role (Mac Ginty & Williams, 2009). Mac Ginty and Williams (2009) review the literature on political economy and conflict with the intention of illustrating the links between poverty, profit and conflict (Mac Ginty & Williams, 2009). They find that a complex mix of conditions contribute to the likelihood of conflict onset, conditions such as; the presence of resources, the pattern of resource exploitation, the perception of benefits of exploitation and identity affiliation (Mac Ginty & Williams, 2009). Blattman and Miguel (2010) add that the economic motivations for conflict have been better theorised than psychological and social factors that contribute to the conflict literature (Blattman & Miguel, 2010). Economic factors are commonly used in the resource-conflict discourse because they are easier to define and measure, compared to psychological and social factors such as historical grievances and identity (Buhaug, Cederman, & Gleditsch, 2014).

The literature on natural resources and conflict is largely focused on the concept of the 'resource curse', its impact on the economic development of states and how this contributes to the risk of conflict. The resource curse argument suggests that states that are rich in natural resources are more prone to conflict because of uneven distribution of resource wealth, corrupt officials, and aggrieved citizens. Scholars, such as Collier and Hoeffler (2004), Le Billon (2012), Koubi and Bohmelt (2013), and Lujala, Gleditsch and Gilmore (2005) have identified a correlation between violent conflict and mineral resources and oil (Collier & Hoeffler, 2004; V Koubi & Bohmelt, 2013; P Le Billon & Cervantes, 2012; P Lujala et al., 2005). There remains debate, however, over the theory and mechanisms that explain why rational actors are more likely to instigate violent conflict in states with natural resources. This thesis aims to review the existing theories and mechanisms that are introduced in the literature, and provide a critical examination of their power to effectively explain the link between conflict and natural resources.

Rustad and Binningsbo (2012) argue that there are three mechanisms that link natural resources to conflict: distribution, finance and aggravation. The distribution mechanism refers to disagreements over the distribution of resources and wealth that may contribute to motivating rebellion (Rustad & Binningsbo, 2012). The financing mechanism identifies that resources can be used as a source of finance for conflict with flow on implications for conflict

onset. The aggravation mechanism refers to the argument that natural resources may aggravate existing conflict as either motivation or opportunity for rebellion, through mechanisms other than distributional claims or funding (Rustad & Binningsbo, 2012). Examples of these three mechanisms are illustrated in the conflict in the Niger Delta (Rustad & Binningsbo, 2012). For example, the Niger Delta experienced disagreements over the distribution of oil revenues; rebels 'tapped into oil pipelines to finance violence', and 'environmental degradation created grievances' and drove increased violence (Rustad & Binningsbo, 2012). Mac Ginty and Williams (2009) also add that 'violent conflict requires active instigation agents' to encourage tensions to escalate into violence (Mac Ginty & Williams, 2009).

Resource Curse and State Capacity:

The 'resource curse' argument emerged in the 1960s, when scholars were debating why some states were more prone to conflict than others (Luong & Weinthal, 2006). Scholars noted that developing and underdeveloped countries had more conflicts than developed countries, but many of these were also rich in resources, which should provide high levels of income (Welsch, 2008). Scholars analysed the role of natural resource wealth and how this correlated to violent conflict. The resource curse can be summarised as the argument that natural resource wealth creates incentives for elites in developing states to create and maintain unrepresentative political systems while redistributing resource revenues unevenly. This creates both motivation and opportunities for armed conflict actors to form. De Soysa and Neumayer (2007) note that natural resources, instead of encouraging effective, efficient and competent government institutions, 'foster corruption, patronage, and rent seeking behaviour' from leaders (Indra De Soysa & Neumayer, 2007), which can lead to the state, and its control over revenue distribution, becoming a target for marginalised groups.

Mac Ginty and Williams (2009) suggest that labour practices, distribution of licences and the destination of profits determine whether a resource rich state will suffer from violent conflict (Mac Ginty & Williams, 2009). They argue that it is a complex mix of the presence of resources, a pattern of resource exploitation, perception of the benefits of exploitation, and identity affiliation that determine the likelihood of the onset of violence (Mac Ginty & Williams, 2009). Mac Ginty

and Williams (2009) conclude that most civil wars take place in poor countries; arguing that poverty and inequality contribute to conflict, and that economic characteristics, such as low growth and dependency on resource revenue, predispose societies to civil war (Mac Ginty & Williams, 2009). Inequality is prominent in most resource rich nations as they often neglect, or lack, alternative revenue sources such as manufacturing or agriculture, in favour of resource revenue from mineral resources (Janus, 2012). Mac Ginty and Williams (2009) argue that if resource revenues are correctly managed, then they can have a positive effect on development, and therefore reduce the risk of conflict (Mac Ginty & Williams, 2009). Ogunleye (2008) highlights that resource rich nations, Nigeria in particular, have problems translating huge resource wealth into sustainable development, because of corruption, mismanagement of funds, and lack of alternative revenue sources (Ogunleye, 2008). These factors contribute to groups fighting over access to, and control of, resources and the subsequent revenue this produces (Rustad & Binningsbo, 2012).

Wick and Bulte, (2006) and Welsch, (2008) discuss state capacity in relation to natural resources and the onset of violent conflict. They find that it is resource abundance linked with slow growth and poor institutions that can trigger conflict (Welsch, 2008; Wick & Bulte, 2006). The phrase 'poor institutions' describe institutions that lack accountability towards the population, and are often autocratic in nature, for example Nigeria, whose 'successive military dictatorships have plundered oil wealth' (van der Ploeg, 2011). Resources and their revenue, if used efficiently, have the potential of being an effective 'driver for economic development' (Brunnschweiler & Bulte, 2009; Mac Ginty & Williams, 2009). However, the resource curse argument suggests that resource dependence engenders poor institutions. This, in turn, creates conditions where social and economic inequalities are exacerbated. Because the government does not rely on the citizens to keep them honest and accountable, instability and grievances grow, increasing the likelihood of violence and conflict (Basedau & Lay, 2009; Luong & Weinthal, 2006). Wick and Bulte (2006) argue that states often engage in activities that not only neglect other aspects of the economy, but also groups of people (Wick & Bulte, 2006). The presence of nepotism or patronage and corruption in resource rich states creates an uneven distribution of resource wealth, resulting in huge disparities between the ruling class and the working class, a common feature in conflict prone regions

(Welsch, 2008). Wick and Bulte (2006) add that states with an inability to effectively distribute wealth from resources, are likely to unevenly distribute other public goods, such as education and security (Wick & Bulte, 2006). De Soysa and Fjelde (2007) argue that factors, such as poorly developed infrastructure and unequal society, are prevalent in resource rich developing nations and therefore can provide an understanding for conflict onset (Indra De Soysa & Neumayer, 2007).

Thies (2010) notes that reverse causality could play a role in the evaluation of the link between the onset of violence and natural resources (Thies, 2010). He argues that the onset of violence and civil war significantly reduces state capacity, because the state's capabilities are redirected to fighting. In theory, natural resource rents might enhance state capacity, rather than increase the likelihood of civil war onset (Thies, 2010). States that have abundant natural resources, therefore, have a means for the government to strengthen its control on power through military spending (Thies, 2010). Strong institutions can provide the barrier for rebel groups to organise, as the revenue received from natural resource extraction can provide the means to maintain order (Snyder, 2006). Thies (2010) argues that states that are war prone might look resource dependent because other industries could have deserted, and the state is relying on natural resource revenue to keep the economy going (Thies, 2010). He finds evidence to this effect that contributes to our understanding of what happens to the resource economy as a result of conflict (Thies, 2010).

Another aspect of the 'resource curse' involves the way in which resource revenues can create the state to be a 'prize', and make the capture of the state a target of rebels and marginalised groups (I de Soysa & Fjelde, 2010; Fjelde, 2009). Scholars argue that groups instigate rebellion in an attempt to either gain control of the state and control of resources, or to put enough pressure on the government, through fighting, to force the redistribution of resource wealth (Basedau & Lay, 2009; Brunnschweiler & Bulte, 2009; V Koubi & Bohmelt, 2013; Nillesen & Bulte, 2014; Welsch, 2008). The state's bureaucratic machine is what controls and distributes the revenue raised from natural resource extraction (Fjelde, 2009; V Koubi, Spilker, Bohmelt, & Bernauer, 2013). Therefore, De Soysa and Neumayer (2007) and Mac Ginty and Williams (2009) argue that the more open and free the state's bureaucracy and economy is, the less likely violence and civil war is to occur; because an open economy is

more accountable to its population, less available to rebel groups to be used as motivation for violence (Indra De Soysa & Neumayer, 2007; Mac Ginty & Williams, 2009).

Studies have found a correlation between the prevalence of corruption and violent conflict in resource rich nations arguing that the impact of corruption on economic performance results in political and socioeconomic breakdown and conflict (Wick & Bulte, 2006). Blattman and Miguel (2010) argue that 'outrage over inequality' can act as prime motivation for engaging in violent action (Blattman & Miguel, 2010). By favouring mineral and oil extraction over more inclusive and diverse industries, governments are limiting the opportunities of investing in jobs, education and development for the general population. Accompanied by prevalent inequality and corruption government's have less motivation to build more accountable institutions and redistribute wealth fairly, creating grievances among the population (Wick & Bulte, 2006).

Kolstad and Wiig (2009) analyse the relationship between transparency and corruption in resource-rich countries, and argue that corruption is a huge problem that helps to explain why some countries suffer from poor socio-economic development, and the onset of violence (Kolstad & Wiig, 2009). They note the behaviour of political elites in resource rich nations reflects the level of transparency and access to information between government and resource extraction companies. Kolstad and Wiig (2009) discuss the implications of agents acting in corrupt ways to increase or maintain their own wealth, without caring about the welfare of the population (Kolstad & Wiig, 2009). They argue that this creates relatively unstable societies with grievances against those in power acting corrupt (Kolstad & Wiig, 2009). Fjelde (2009) and Wick and Bulte (2006) state that resource rich governments that no longer rely on taxes from the population for revenue, have no need to be accountable to its citizens which in turn breeds corruption and inequality and closes off opportunities for non-violent and institutional forms of conflict resolution (Wick & Bulte, 2006).

Kolstad and Wiig (2009) find that corruption is prevalent in resource-rich developing countries because there is 'ample space for bribes when the resource rents are huge' (Kolstad & Wiig, 2009). Although, they conclude that transparency is not enough on its own to reduce the risk of violence, they suggest that good institutions - institutions that promote open and transparent

operations - can transform rents into favourable development outcomes, which in turn reduces the risk of violence (Kolstad & Wiig, 2009). Kolstad and Wiig (2009) analyse the impact that transparency and information capture can have on corrupt agents, and how this affects resource rents (Kolstad & Wiig, 2009). Agents, such as government officials, monitoring and evaluation officers, anyone employed or assigned to collect and report revenue for tax purposes, can choose to be corrupt or honest (Kolstad & Wiig, 2009). This means that the agents can choose to misrepresent the revenue and take bribes to increase their income, or honestly report and receive a wage for their work (Kolstad & Wiig, 2009). Information capture refers to the control over the distribution of information usually accessible to all relevant stakeholders (Kolstad & Wiig, 2009).

Kolstad and Wiig (2009) note that it pays to be corrupt when others are corrupt (Kolstad & Wiig, 2009). They argue that it is in the interest of corrupt agents to control or capture information, in order to manipulate and influence political outcomes, if it could result in gains for themselves (Kolstad & Wiig, 2009). They identify that information capture intensifies the 'moral hazard problem', because elected officials are more likely to engage in rent seeking in a non-transparent environment, as they are less likely to get caught, and whoever controls the capture of information has a vested interest in corruption and the monetary rewards associated with it (Kolstad & Wiig, 2009). In contrast, 'transparency reduces the possibilities of rent seeking activities and increases accountability of the government' (Kolstad & Wiig, 2009). Widespread corruption can result in the failure of formal agreements where cooperation and honesty is needed to implement reforms, and instead, encourages opportunistic acts, such as looting and rent seeking, particularly in resource-rich developing states (Kolstad & Wiig, 2009).

De Soysa and Neumayer (2007) explain that conflict risk, relative to natural resource wealth, reflects an inverted U shape. The richer the state, the more money the government can use to cement its monopoly on power, and has a greater ability to suppress rebellions and uprisings (Indra De Soysa & Neumayer, 2007). Likewise, countries that are poor in resources are unlikely to experience conflict because there is little gain in initiating a war against a poor government (Collier et al., 2009). Whereas, countries that fall in the middle of the curve are more likely to experience conflict because the state is considered a feasible prize (Indra De Soysa & Neumayer, 2007). Additionally,

the government is unlikely to have the finances to compensate the rebels enough to deter conflict (V Koubi et al., 2013).

Nillesen and Bulte (2014) analyse how resource revenue can both stabilise and de-stabilise a state, depending on the type of regime and its ability to access alternative revenue sources (Nillesen & Bulte, 2014). Basedau and Lay (2009) discuss how governments can use resource revenue to 'buy off opposition or suppress armed rebellion, thereby contributing to political stability and preventing armed conflict' (Basedau & Lay, 2009, p. 758). They suggest that the effect that resource revenue has on the stability of the state depends on the strength of the state, as weak institutions assume an easy prize (Basedau & Lay, 2009). The strength of states and their institutions are measured and defined by several indicators. Rice and Patrick (2008) define a weak state as a state that is 'unwilling or unable to provide essential public services, which include fostering equitable and sustainable economic growth, governing legitimately, ensuring physical security, and delivering basic services' (Rice & Patrick, 2008). They use the following indicators, divided into economical, political, security and social welfare indicators, to measure state strength. The political indicators include; quality of institutions, degrees to which citizens accept the governance system as legitimate, measure of accountability, and the ability of the bureaucracy and institutions to function effectively, independently and responsively. The security indicators include; the occurrence and intensity of violent conflict and its residual effects, perceptions of political instability and state sponsored political violence. Finally, the indicators of social welfare cover the ability of the state to meet the basic needs of citizens such as access to nutrition, health, education, water and sanitation (Rice & Patrick, 2008). Nillesen and Bulte (2014) add that strong institutions can result in a larger reward if rebel groups manage to overthrow the government because the revenues are managed better (Nillesen & Bulte, 2014). However, the stronger the state, the harder it is for rebel groups to win, because the state is likely to spend more money on an effective military apparatus, than weaker governments (Besley & Persson, 2010).

Nillesen and Bulte (2014), Brunschweiler and Bulte (2009) and Wick and Bulte (2006) all note the importance of recognising reverse causality and spuriousness (Brunschweiler & Bulte, 2009; Nillesen & Bulte, 2014; Wick & Bulte, 2006). The 'resource curse' argument specifies that resource rich countries are prone to conflict because of political, economic and social consequences (instability,

poverty and inequality) that result from relying solely on resource revenue (Thies, 2010; Wick & Bulte, 2006). Brunnschweiler and Bulte (2009) argue that reverse causality may also play a vital role in the correlation between resource abundance and conflict, which can implicate conflict prone countries that discover resources (Brunnschweiler & Bulte, 2009). Lujala, Gleditsch and Gilmore (2005) note that a 'country suffering from low-level violence and political unrest may look more resource dependent as a consequence of instability' (P Lujala et al., 2005). Lujala et al (2005) also note that a state may be more prone to conflict because of other 'exogenous factors, such as famine or conflict in a neighbouring country', and their effect on the economy, without affecting primary exports (P Lujala et al., 2005).

Resource dependence is measured in different ways, most commonly through calculating the natural resource wealth of a state compared to alternative revenue. Collier and Hoeffler (2004) measure the primary commodity exports as a percentage of Gross Domestic Product (GDP), suggesting that when one third of GDP is from primary commodity exports, there is a high risk of civil war (Collier & Hoeffler, 2004). Alternatively, De Soysa and Neumayer (2007) measure the value of natural resource extraction through unit rent, which is calculated by subtracting the cost of extraction from the world price of the resource, multiplied by the amount extracted, and then divide this by Gross National Income (GNI) (Indra De Soysa & Neumayer, 2007). Collier and Hoeffler (2004) look at dependence through exports and how reliant a state may be on natural resource exports, whereas De Soysa and Neumayer (2007) look at how much of a states income originates from resource extraction – the value of resource extraction versus the value of exporting natural resources.

Blattman and Miguel (2010) conclude that 'civil war is more likely when state wealth is easily appropriated or divorced from the citizenry', which is common with highly corrupt governments (Blattman & Miguel, 2010). When government officials are corrupt, they will do everything within their power to maintain their status and position, including eliminating time limits to their terms, nepotism and weakening the political opposition (Bates, Greif, & Singh, 2002; Fjelde, 2009). Activities like these were prevalent during the Cold War, but were most active following the end of the Cold War, as the alliances and international divisions dissipated, and poor countries could no longer rely on the east and west divide to pressure the powers for support. As a result of the end of the Cold War, there

was a withdrawal of economic support for developing countries; this was particularly detrimental for resource rich states that were plagued by corruption (Reno, 1997). The affected countries were forced to find other sources of income for development, forcing them towards resource dependence, instead of the aid they were receiving throughout the Cold War.

Blattman and Miguel (2010) cite William Reno's (1999) argument that 'strongmen found it optimal to deinstitutionalise the state and the formal bureaucratic mechanisms in favour of a parallel "shadow state" under their own control' (Blattman & Miguel, 2010; Reno, 1999). Reno (1999) argues that "warlord states" were a result of the presence of resource wealth and pressures for economic liberalisation (Reno, 1999). This poses a puzzle in the literature, as Reno (1999) is arguing that economic liberalisation drove "warlord states" and "shadow states" (Reno, 1999). The puzzle here is that Reno (1999) is suggesting that the combination of liberalisation and resources might induce conflict, whilst others, such as De Soysa and Fjelde (2010) suggest that liberalisation is, in general, peace inducing (De Soysa & Fjelde, 2010; Reno, 1999).

Resources Wars and Financing Conflict

It is important to note that there is a difference between 'resource wars' and the 'resource curse'. Guidolin and La Ferrara (2007) define resource wars as a conflict where both the rebels and the government forces are financed by the exploitation of natural resources (Guidolin & La Ferrara, 2007). Therefore, resource wars define the type of conflict funding, whereas the term resource curse refers to the way in which natural resource wealth creates structural conditions that are conducive to armed conflict. Fjelde (2009) and Ross (2004) argue that rebel groups utilise natural resources because they are easy to control and defend during conflict, and provide sufficient funding opportunities for rebels (Fjelde, 2009; M. L. Ross, 2004). Specifically, 'lootable' resources increase the risk of violent conflict, because they are easy to access and control (Basedau & Lay, 2009; V. Koubi & Bohmelt, 2013; Rustad & Binningsbo, 2012; Welsch, 2008; Wick & Bulte, 2006). Fjelde (2009) notes that different resources influence conflict differently; for example, oil rich countries are more likely to experience coups and fighting for state power in order to gain control over the resource revenue (Fjelde, 2009). Countries with an abundance of

alluvial diamonds are more likely to experience territorial conflict, fighting for control of land and access to resource extraction (M. Ross, 2006).

Lujala, Gleditsch and Gilmore (2005) argue that lootable resources are more likely to have an effect on the onset of conflict because they provide a financial opportunity for rebels to initiate violence (P Lujala et al., 2005). In addition, Le Billon and Cervantes (2012) suggest that geological formation and geographical location help determine the effect that natural resources have on conflict (P Le Billon & Cervantes, 2012). Le Billon (2012) argues that point resources located close to the central government are likely to encourage conflicts over state control or coups, whereas, if they are further away from the central government, they are likely to result in the initiation of a secessionist conflict, as illustrated in Table 1 (Philippe Le Billon, 2011). Point resources are resources that are geographically concentrated, high value, and require capital-intensive extraction methods, such as oil, gas, primary gemstones and some minerals. The geographic concentration of these resources is often referred to playing a key role in secessionist movements or conflict over government rule. For example in the Republic of Congo, offshore oil wealth was appropriated by incumbent rulers, exacerbating societal divisions and contributing to conflict recurrence (Englebert & Ron, 2004; Philippe Le Billon, 2011). Conversely, diffuse resources, resources that are not concentrated to one location, such as alluvial gold and diamonds, are often connected with countries that experience rebellion or warlordism, where a de facto state is imposed through violence and criminal activity (Philippe Le Billon, 2011). Specifically, Sierra Leone and conflict diamonds is the most commonly used example because of the extent that the diamonds played in the conflict and international policy at the time; these diamonds were diffuse and easy to exploit (M. Ross, 2006).

Table 2-1 Le Billon Table (Philippe Le Billon, 2011)

Point		Diffuse
Proximate	Coup d'état	Mass Rebellion
Distant	Secession	Warlordism

Janus (2012) finds a positive connection between mineral resources and conflict onset and duration, suggesting that different groups - governments, military, and rebel groups - are likely to use revenue from natural resources as a source of finance for conflict (Janus, 2012). Revenues from natural resources can be utilised by both the state and other fighting parties for conflict. The state can use the revenue from resource exports to finance the military, hiring more full-time soldiers, and to purchase weapons, uniforms, vehicles and fuel (Janus, 2012). Rebel groups can use lootable resources to pay for soldiers and weapons, but cannot access larger revenues because they are controlled by the state (P Lujala et al., 2005). Janus (2012) and de Soysa and Fjelde (2010) mention the challenge of costs for rebel groups, because they do not have the monopoly on violence like the state, and they may struggle to find financial sources (I de Soysa & Fjelde, 2010). Resources, therefore, can play a vital role in rebels' decision to fight, depending on the availability of and access to easily lootable resources. Janus (2012) also discusses the potential for rebel groups to borrow against future earnings, by promising to pay soldiers once they win by achieving their intended goal (Janus, 2012). For example, if alluvial diamonds are present, they can fight for control of the diamond fields and then use the revenue to pay their soldiers (Janus, 2012). Janus (2012) uses alluvial diamonds in this example, because they are easy to access, defend and sell (Janus, 2012).

Furthermore, Fjelde (2009), Ross (2004) and Welsch (2008) argue that less capital-intensive resources are likely to be used by rebels during conflict, as opposed to resources that require capital-intensive infrastructure and knowledge to extract (Fjelde, 2009; M. Ross, 2006; Welsch, 2008). However, the discussion is limited to lootable versus non-lootable and does not explore the

type of extraction companies involved in capital-intensive extraction. These scholars reaffirm the importance of looking at the physical configuration of resources, and the political and economic environment that surround resource extraction (Welsch, 2008) (P Lujala et al., 2005).

Additionally, Cotet and Tsui (2013) and Bell and Wolford (2015) analyse the relationship between oil discovery and the onset of conflict (Bell & Wolford, 2015; Cotet & Tsui, 2013). They outline the potential of future wealth, and the ability of groups to use that wealth to influence their bargaining power (Bell & Wolford, 2015; Cotet & Tsui, 2013). Cotet and Tsui (2013) find little robust evidence to connect oil discoveries to conflict onset, however they do conclude that there is a relationship between oil discoveries and an increase in military spending, especially in non-democratic countries (Cotet & Tsui, 2013). Bell and Wolford, in their 2015 study, develop the relationship between oil discoveries and conflict further, and find that a stronger relationship exists between oil discoveries and violence in less wealthy states (Bell & Wolford, 2015). Bell and Wolford (2015) outline that new discoveries 'create a window of opportunity for rebels' to challenge the government, before they are able to realise the revenues from oil discovery and the power 'shifts even further in the government's favour' (Bell & Wolford, 2015). They suggest from their findings that powerful states will be more resistant to changes as a result of oil discovery, and the future profits, which will act as a deterrent for rebels to initiate conflict (Bell & Wolford, 2015). Alternatively, they argue that weak states are less likely to be able to deter challenges from outside the government following discovery (Bell & Wolford, 2015). Additionally, Cotet and Tsui (2013) suggest that a non-democratic state is more likely to increase military spending following the discovery of oil, which increases the costs for potential rebels, preventing rival groups from seizing power and control of the oil revenue (Cotet & Tsui, 2013).

De Soysa and Fjelde investigate the relative 'payoffs to be gained from production and resource appropriation' (I de Soysa & Fjelde, 2010, p. 291). They suggest that fighting groups will only instigate violence if the opportunity costs are attractive. Opportunity costs refer to the relative, rather than absolute, costs associated with initiating a conflict (Welsch, 2008). This is similar to feasibility theory, which will be discussed further in the theory chapter. Feasibility theory suggests that fighters are rational actors that calculate the likelihood of success, consider the costs and benefits of instigating violence, and if

conditions are favourable, they will fight (Collier et al., 2009). Koubi et al (2013), and Mac Ginty and Williams (2009) argue that opportunity or greed can play an underlying role in sustaining conflict, but that grievances are often the face of the rebellion (V Koubi et al., 2013; Mac Ginty & Williams, 2009). They argue that people are more likely to join a rebel movement if they are fighting for the return of something that historically belonged to the local community, such as land, money and/or resources (Mac Ginty & Williams, 2009). As opposed to fighting because they want, or there is an opportunity to gain, access to resources and their revenue (Mac Ginty & Williams, 2009).

Literature on Political Systems and Conflict

In this section I will outline the literature on political systems, the governance of natural resources, and conflict. This portion of the literature review aims to show how resource-conflict scholars have analysed aspects of resource extraction that impact the likelihood of conflict, and how the ownership of resource extraction is a part of this dynamic. Although there is a growing branch of scholarship within the field of resource-conflicts that has been researching the ownership of resource extraction and its impact on conflict, there is still a gap in the research for this thesis to address. The gap in this part of the research is centred on the type of resources, and the method of measuring ownership. First, I will discuss how political and economic systems govern natural resources, and what impact the governance has on the likelihood of conflict. Second, I will discuss the literature that has touched on the ownership of resource extraction and its impact on conflict. I will conclude this section with a brief discussion of a portion of the literature that discusses the management of natural resources in post-conflict situations, in order to prevent the recurrence of conflict.

Governance of Resource Extraction

De Soysa and Fjelde (2010) discuss the impact of economic systems and assert that this is a better measure and predictor of conflict onset than regime type (I de Soysa & Fjelde, 2010). They suggest that open and free economies are less likely to encourage 'illegal' behaviour, and therefore, less prone to conflict (I de Soysa & Fjelde, 2010). They argue that, because the state is not heavily involved in the economy, the state is no longer perceived as a prize for rebel groups to

gain control over, because it will not enable rebels to accumulate resources or the benefits of rebellion. 'States that have an economic system favouring private commercial interests and thereby lower involvement of the state in the economy show a lower risk of conflict' (I de Soysa & Fjelde, 2010, p. 296). Instead, it is the private companies/parties that participate in the economy that would be perceived as the threat to community wellbeing and development, if they were seen to be contributing to inequalities (I de Soysa & Fjelde, 2010; Mac Ginty & Williams, 2009).

Following the end of the Cold War, states were encouraged to adopt neoliberal policies to deregulate their economies in order to encourage foreign direct investment and promote growth (Acuña, 2015). Due to deregulation and slow development rates, states experienced increased competition to entice private corporations and investments to their territories. The resulting concessions relinquished development obligations and overlooked mineral laws that required a percentage of state ownership (Gomez & Sawyers, 2012). Governments' attempts to encourage private investment in the mineral industry, by removing the barriers of social corporate responsibility, can result in aggrieved local populations and therefore increase the likelihood of violent conflict. The promised benefits to the community, such as job creation, community development and building infrastructure, often lose momentum and fail (Gomez & Sawyers, 2012). The economic growth associated with increased resource extraction carries costs as a result of dispossession felt by indigenous peoples (Acuña, 2015). Le Billon (2011) argues that these characteristics 'provide a context for political mobilisation' by the local community suffering from a lack of development while the government or extraction company reaps the benefits of their land (Philippe Le Billon, 2011).

Acuna (2015) discusses the role of extractive governance with reference to Peru and the Baguazo conflict as his case study (Acuña, 2015). He argues that the pressure, during the 1990s, for Peru to adopt neoliberal policies encouraged an influx in mining concessions, which contributed to the increased number of social conflicts (Acuña, 2015). Acuna (2015) highlights the numbers of recorded social conflicts, in particular those labelled as 'socio-environmental conflicts', which refer to conflicts between people and their environment (Acuña, 2015). Acuna (2015) notes that many of the socio-environmental conflicts show resistance to the dispossession processes of extractive industries, for example,

the dispossession of resources such as water or grazing lands, or the 'dispossession of health in the case of the lead mining company, Doe Run in La Oroya' (Acuña, 2015).

Ownership of Resource Extraction

The relationship between the state and resource extraction companies is focused on profit margins, and tends to overlook the rights of indigenous populations (Zandvliet, 2005). Particularly, formerly colonial states, where indigenous groups have a history of marginalisation, discrimination and exclusion, it is argued these communities are more likely to experience conflict (Altman, 2012). Acuna (2015) argues that colonial legacies are entrenched in the ill-designed policies of former colonies, through patterns of domination that deny indigenous ontologies (Acuña, 2015). Acuna (2015) suggests that the lack of respect for the beliefs and rights of indigenous people is historically entrenched in society and this is reflected in policy that marginalises their position in the eyes of the law.

Additionally, Sawyers and Gomez (2012) outline that indigenous groups are fighting for land rights in order to guide the interactions with resource extraction companies working in their territory (Sawyers & Gomez, 2012). They suggest that indigenous groups fight to protect the rights to their land and their right to financial compensation (Sawyers & Gomez, 2012). They note that the laws for indigenous rights first need to define who is recognised as indigenous and as rights bearing subjects (Sawyers & Gomez, 2012). Once land rights are claimed and legitimised, they then have a legal voice in the discussion between extraction companies and the government, however, this can be empowering or debilitating, depending on the cohesiveness of the indigenous groups (Sawyers & Gomez, 2012). Sawyers and Gomez (2012) suggest that indigenous groups that do not have legal rights to their lands may fight to gain these rights (Sawyers & Gomez, 2012). Buhaug, Cederman and Gleditsch (2014), argue that this situation can lead to violent civil war if the indigenous group and their grievances are not heard (Buhaug et al., 2014). Additionally, Asal, Findley Piazza and Walsh argue that excluded ethnic groups are more likely to experience conflict when oil wealth is in their territory (Asal, Findley, Piazza, & Walsh, 2015). Acuna (2015) adds that the process can be hindered by governments changing policies without consulting the indigenous communities

who were party to the initial agreement in favour of pursuing economic interests (Acuña, 2015).

The balance between recognising and respecting indigenous rights in a resource rich nation needs further attention to ensure that the interactions between multinational corporations, governments and indigenous people are conducive to peaceful mutually beneficial relations (Acuña, 2015; Sawyers & Gomez, 2012). Sawyers and Gomez (2012) conclude that there is a paradox of increasing international and national legal instruments recognising the legal rights of indigenous peoples, however there is also an increase in the marginalisation of the majority of indigenous peoples (Sawyers & Gomez, 2012). They note that 'the paradox calls for greater analysis of regimes of power at play under processes of neoliberal reform and heightened capital-intensive resource extraction' (Sawyers & Gomez, 2012). This suggests that there is a connection between the power of state regimes, marginalised groups and mineral extraction companies, and that rifts between these groups could lead to violence.

Ogunleye (2008) discusses alternative methods of fighting poor governance of resource extraction and prevalent corruption in Nigeria (Ogunleye, 2008). In Nigeria, rebel groups target and attack the infrastructure of resource extraction, sabotaging and tapping into oil pipelines, instead of fighting the government, in an attempt to redirect and gain control over the resource revenue (Ogunleye, 2008). Boege and Franks (2012) outline how rebel groups design attacks on extraction infrastructure in an attempt to alter the behaviour of extraction companies with reference to the Bougainville conflict in Papua New Guinea in the late 1980s (Boege & Franks, 2012). Sabotaging the infrastructure of resource extraction companies has been described as an alternative to looting for capital-intensive resources, as was seen in Bougainville at the Panguna Mine, and in the Niger Delta (Boege & Franks, 2012; Ogunleye, 2008).

Capital-intensive natural resources are location specific; therefore, companies working with these resources are limited in their actions, because they cannot easily relocate like manufacturing and production companies, should conflict occur in the area (Philippe Le Billon, 2011). Conversely, rebel groups cannot easily use point resources to finance their efforts because they often do not

have the knowledge of extraction processes, nor can they easily afford the cost of extraction (P Lujala et al., 2005). The type of resources present in a state and the subsequent extraction companies, therefore, will have an impact on the decisions of rebels to initiate conflict or not.

Tim Wegenast (2015) investigated the effect of ownership structure of oil and natural gas on intrastate conflict, and found that countries with state-owned oil and gas extraction tend to have a curvilinear relationship with intrastate conflicts (T. Wegenast, 2015). In other words, Wegenast (2015) found that when state-owned oil and gas production is at both high and low levels conflict is less likely than medium levels of production (T. Wegenast, 2015). Wegenast (2015) also noted that the greed and grievance mechanisms were more pronounced in countries with state-owned oil and gas extraction (T. Wegenast, 2015). Wegenast (2015) suggests that state-owned oil and gas extraction encourages corruption, patronage and other peace-buying practices (T. Wegenast, 2015). The results from Wegenast's work compliments the work of the likes of Fjelde (2009), Mahler (2011), Basedau and Lay (2009), Rustad, Lujala and Le Billon (2012) and Brunnschweiler and Bulte (2009) who all touch on the power of oil wealth in the hands of corrupt government officials and their ability to buy peace (Basedau & Lay, 2009; Brunnschweiler & Bulte, 2009; Fjelde, 2009; Mahler, 2011; Rustad, Lujala, & Le Billon, 2012).

Additionally, conflict entrepreneurs may find that pre-conflict conditions provide the perfect scenario to align themselves with businesses that extract minerals (Mac Ginty & Williams, 2009). In other words, the entrepreneurs could conduct a deal with an extraction company to provide security to protect the company if conflict should occur, or, alternatively, could make conflict less likely. This corrupt activity would cement the conflict entrepreneur's position with the company and ensure an uninterrupted flow of revenue (Kolstad & Wiig, 2009). Le Billon (2012) discusses this idea but limits the scope to diffuse resources, with his theory that if the resources are located further from central government then warlordism is the most likely to occur, because it is the most financially viable option (Philippe Le Billon, 2011). However, the International Aid Transparency Initiative and Corporate Social Responsibility were measures introduced by the international community to combat the illicit activity between corporations, governments and conflict entrepreneurs (Altman, 2012; Kolstad & Wiig, 2009; Sawyers & Gomez, 2012; Wiig & Kolstad, 2012). In

particular, Corporate Social Responsibility was introduced in an attempt to improve the accountability of multinational corporations and their impact on local communities where they work (Altman, 2012; Wiig & Kolstad, 2012). Gomez and Sawyers (2012) argue that since the introduction of Corporate Social Responsibility, the view of resource extraction companies has not improved in many places due to the power of neoliberal economic policies and the lack of accountability due to self-regulatory monitoring mechanisms (Gomez & Sawyers, 2012).

The current economic system and the widespread reliance on oil and mineral resources for consumerism mean that there will always be a strong demand for natural resources for the foreseeable future. Le Billon (2012) notes the role of international interventions into countries with 'strategic resources' experiencing conflict (Philippe Le Billon, 2011). Le Billon (2012) suggests that the interventions into resource-rich, conflict-plagued regions are often to protect strategic resources from the effects of conflict, largely through manipulation of leaders and support for secession movements to enable continued and favourable access to resources (Philippe Le Billon, 2011). The great consumer demand for natural resources brings together complexes of private companies and state bodies to 'create an oasis of petrochemical calm in the midst of wider conflict', just to ensure that access to natural resources is unrestricted (Mac Ginty & Williams, 2009). The behaviour described by Mac Ginty and Williams (2009) and Le Billon (2012) suggests that continued research into the relationship between resources and conflict is still valuable, and there are still gaps in the scholarship; this thesis aims to address the gap of the effect that ownership of resource extraction has on the severity of violence.

Resource Extraction and Post-Conflict Recurrence:

A large part of the literature looks at the affect of natural resources during post-conflict times, as well as the duration and intensity of conflict. However, the post-conflict literature can also apply to the onset of conflict, as it discusses how resources can create conditions that make it feasible for groups to return to arms and therefore initiate conflict (I de Soysa & Fjelde, 2010, p. 287). Boege and Franks (2012) discuss the reopening of mines in post-conflict time, in relation to Bougainville and Guatemala, and how the grievances present in the communities could contribute to them using the resource extraction to either

hurt the government or use to fund more conflict. Rustad and Binningsbo (2012) note that peace depends on whether 'natural resources can constitute a motive or opportunity for armed conflict' (Rustad & Binningsbo, 2012), they discuss this in relation to conflict recurrence also. Rustad and Binningsbo (2012) discuss conflict recurrence with respect to three mechanisms; distribution, finance and aggravation, these are three aspects of resource conflicts that also apply to conflict onset, which can explain the logic behind rebel groups deciding to instigate conflict, as well as, return to conflict.

The relationships between companies, communities and government in post-conflict resource rich countries, suggest that the aspects for conflict recurrence could be influential in predicting conflict. Boege and Franks (2012) note the 'challenge of company-community relations' and how the parties go about mending differences to ensure peace in post-conflict times (Boege & Franks, 2012). They discuss how to ensure all parties involved or affected by resource extraction all play a part in the negotiation of reopening a mine (Boege & Franks, 2012). Boege and Franks (2012) argue that if the resource extraction company played a role in the conflict, then it is more beneficial to include community groups and their leaders in the negotiations before reopening the mine post-conflict to promote reconciliation (Boege & Franks, 2012). It is plausible to think then, that these actions would be beneficial when establishing a mining operation in any developing nation, particularly if they have experienced conflict. Boege and Franks (2012) also demonstrate the implications of setting up new mining operations in a post-conflict zone with reference to companies participating in rebuilding and engaging in 'conflict-sensitive community relations practices', particularly in Guatemala (Boege & Franks, 2012, p. 113).

Boege and Franks (2012) find that the role of mining companies is important in guiding and building effective relationships between local communities, and government in post-conflict situations, because it is a sensitive period where reconciliation is priority for all parties affected by conflict (Boege & Franks, 2012). Additionally, in regions that are further from central government, or where the government is weak, Boege and Franks (2012) emphasise the importance of companies to work with the local community, and government to establish effective institutions and involve the community through creating jobs in extraction and building infrastructure (Boege & Franks, 2012). By

participating in these processes, it is possible that companies can contribute to maintaining the peace and building resilient communities by improving transparency, minimising grievances, and abiding by their corporate social responsibility (Boege & Franks, 2012).

Summary of Literature:

Ultimately, the debate around the impact that extraction of natural resources has on violence is centred on the puzzle introduced in this chapter; that resources can act as both a stabilising and a destabilising force for states, depending on how the resources are managed. This chapter has outlined the main arguments in the literature on conflict onset and resource extraction. I have explored ideas of the resource curse, and the implications of slow development, poor policy and weak institutional capacity in resource rich countries. Scholars looking to explain why conflicts occur in resource rich nations have narrowed the scope down to three main contexts that imply a higher risk of violence and conflict for resource rich countries. The first context is a state's ability to effectively redistribute revenue and build capacity. The second context is the ability of rebels to use resources to finance conflict. And thirdly, the governance of resource extraction as a product of international economic trends, such as increasing privatisation and deregulation of economic actors like mining companies, with the ownership of resource extraction and post-conflict recurrence adding further understanding to the conditions that make picking up arms feasible.

Scholars find that the ability of the state to redistribute resource revenue plays a role in whether a state will be more prone to conflict onset. Countries that experience slow economic growth and are dependent on a single source for earning government income, for example natural resources, are likely to have a poorly built state capacity/bureaucratic apparatus that resorts to corruption and nepotism for the distribution of resource revenue. De Soysa and Fjelde (2010) argue that people are more likely to vote for an incorrupt government because it will operate through open and honest trade deals where the income can be transferred to sustainable economic development (I de Soysa & Fjelde, 2010). Additionally, these countries are less likely to have corrupt officials, and as a result, less likely to have created an environment where

people feel that the costs of fighting for fairer distribution of resources are better than the status quo.

The type of resource has been shown to matter when it comes to the onset of violence, as the type of resource, point or diffuse, determines how it is likely to be extracted and therefore, how potential rebel groups can use the resource in conflict. The more lootable a resource is, the more likely it will be used to finance a rebellion, whereas, more capital intensive resources are likely to entice rebels to fight/attack the state or resource infrastructure, depending on which option is more feasible. Additionally, Cotet and Tsui (2013) and Bell and Wolford (2015) discussed the implications of the discovery of resources, particularly in states where the likelihood of future repression is high, therefore making rebellion more feasible than fighting once the state is receiving revenue, and has the ability to increase their capacity to stop rebellion (Bell & Wolford, 2015; Cotet & Tsui, 2013).

Resource wars, resource dependence and conflict over control and access to resources have become more predominant following changes to the international economic environment and pressure for liberal policies in developing countries. Participation of multinational corporations in weaker national economies increased following the end of the Cold War. Economic pressures, in addition to lack of recognition of indigenous peoples' rights, colonial legacies, and lack of state capacity/knowledge could contribute to conditions where conflict entrepreneurs find it more beneficial to take up arms, as opposed to joining more peaceful means, to bring about social and institutional change.

This chapter has outlined the arguments from the main scholars who have produced work on natural resources and conflict onset. The literature reviewed in this chapter has shown that resources can have an affect on the conditions that foster rebellion and violence. Additionally, this chapter has shown that economic factors and actors play an important role in how a population perceives the value of natural resources and how the state redistributes that value. There is a small branch of the resource-conflict field of research that touches on the ownership of resources and its impact of conflict is restricted in its approach to investigate the effects of ownership. This portion of research only incorporates oil and gas extraction, and as a result, fails to show how much

ownership of resource extraction can affect the onset and severity of violent conflict. In particular, whether the effects change depending on the type of resource being extracted, and for other methods of measurement. This thesis aims to address this gap in the research by providing some insight into the effect that the ownership of resource extraction has on the onset and severity of violent conflict. In the next chapter I will outline and discuss the arguments that explain what motivates people/groups to initiate violent conflict, and link these mechanisms to variations in whether resources are extracted by private or a state-owned companies.

3. Theory

Introduction

In the previous chapter, I outlined the main arguments from the literature on natural resources and violent conflict onset. In this section I will further explain how different types of ownership may affect conflict onset differently. Additionally, I will identify how low-level violence and high-level violence are linked to the presence of private and state-owned natural resource extraction companies respectively. I derive an integration of theories that will provide insight into what conditions drive groups to instigate violence and whether high or low level violence is the most efficient and feasible option, based on the anticipated response from the government and the resource extraction company. First, I posit that when resource extraction is privately owned, there is more incentive to negotiate and avoid violence. Therefore, potential rebel groups are more likely to use tactics in line with low-level violence. Second, I posit that when resource extraction is state-owned, potential rebel groups will anticipate that the government will be more likely to use severe repression to end further disruptions to production. As a result, only strong rebel groups will initiate violence, or groups will wait until they have the capabilities to launch a rebellion, and other methods of high-level violence. Consequently, the use of high-level violence may lead to longer conflicts and civil war, due to the likelihood of the military becoming involved, whereas low-level violence will most likely be resolved quickly by way of negotiations and concessions with potential rebel groups.

The majority of the research on natural resources and conflict has been limited to the effect of oil, gas and precious gemstones on conflict onset. This research will look at exploited mineral and fuel resources¹ and how they impact the severity of violence used. This chapter will begin by outlining the common theories used by natural resource conflict scholars to explain the link between natural resources and conflict onset, and, the opportunities and conditions that enable mobilisation and financing for rebellions to occur. Second, I will outline the main argument of this chapter by discussing the hybrid theory used in this

¹ The types of natural resources included in this study are defined in the method's chapter.

thesis that provides the best theoretical explanation for why potential rebel groups will instigate violence when resource extraction is present. Then I will go on to outline the causal story of how the ownership of resource extraction can affect the anticipated onset and level of violence differently.

Conflict onset can be understood as caused by factors that stress grievances and factors that stress opportunities, but recent research has begun the process of integrating these two, and that one is not complete without the other (Cederman, Gleditsch, & Buhaug, 2013a; Regan & Norton, 2005; Walter, 2012). For that reason, this thesis argues that groups will take into account the type of extraction company, the type of government, and anticipate the appropriate level of violence it will take to succeed without the high costs normally associated with rebellions. A narrative within conflict literature argues that groups of the population may feel overlooked through the process of setting up resource extraction operations. For example, indigenous groups may feel marginalised in society with have historical ties to the land, and their participation may be overlooked throughout the negotiation stages of setting up extraction projects. Therefore, these groups may feel that they are not receiving their share of the profits, and/or see their land being destroyed for the profit of the company and the government. As a result, these groups may want to fight for recognition of their rights, and may escalate that fight for control of the resources in order to more effectively distribute resources. Most studies of conflict onset and natural resource extraction argue that there is a causal relationship between natural resource extraction and the onset of violence.

Common Theories

The main theories proposed in the literature on natural resources and violent conflict relate to (1) grievances that encourage groups to mobilise, and (2) the opportunities for success that facilitate rebellion. In the civil war literature, conditions such as a lack of development, ethnic fractionalisation, and inequalities, are commonly argued to be key factors determining the likelihood of conflict occurring in a particular state (Fearon & Laitin, 2003; Mahler, 2011). For conflict to occur, movements need motive, opportunity, popular support, and capability (Blattman & Miguel, 2010). Cederman, Gleditsch and Buhaug (2013) note that the 'the struggle of discriminated and stateless people' cause

civil wars, as it is difficult to sustain regimes that exclude large sections of the population from participating in political power along ethnic or non-ethnic lines (Cederman, Gleditsch, & Buhaug, 2013d). Additionally, Asal, Findley, Piazza and Walsh (2015) argue that excluded ethnic groups, who have oil wealth within their settlement area, are more likely to experience the onset of armed conflict, as opposed to similar groups who do not possess land rich in natural resources (Asal et al., 2015). In Cederman et al.'s (2013) book, they argue that grievances provide motivation for the onset of violence, and outline the critiques of the theory, including Meuller's (2000) argument that grievances are 'an opportunistic cover for greedy and even criminal activities' (Cederman et al., 2013d). Walter (2012) adds that 'some wars may occur simply because groups can profit from various forms of resource extraction or illicit activities during war' (Walter, 2012).

This section aims to provide some basic explanations of the two main theories that effectively communicate how rebel mobilisation and the onset of violence occur in states with natural resources. First I will explain grievance theory, followed by opportunity theory, separately. By exploring these theories on their own I will outline their strengths and weaknesses in explaining resource-conflicts. I will then explain the main argument of this thesis, and how the two theories, grievance and opportunity, work together as a hybrid theory, that can provide an effective explanation of how the different ownership structures, private and state-owned resource extraction, can determine the severity of violence states are likely to experience,

Grievance

Grievance theory evolved from theories of relative deprivation and revolution, developed by Ted Robert Gurr (1970) and James C. Davies (1962) (Davies, 1962; Gurr, 1970). Cederman, Gleditsch and Buhaug (2013) outline the main arguments from Davies and Gurr to illustrate the link from inequality and grievances to civil war (Cederman, Gleditsch, & Buhaug, 2013c). They note that 'relative deprivation theorists argue that individuals widespread discontent with their social situation triggers conflict, especially where modernisation fuels a "revolution of rising expectation" (Davies 1962)' (Cederman et al., 2013c; Davies, 1962; Gurr, 1970). Cederman et al. find that structural imbalances in society, such as inequality, can be linked with conflict through relative

deprivation theory. Cederman et al. (2013), along with other scholars of collective violence and conflict onset, suggest that these theories provide explanations to the psychological mechanisms that drive groups decisions to fight when they perceive inequalities, or 'unfulfilled aspirations, usually related to material wellbeing', between and among groups of society (Cederman et al., 2013c; Davies, 1962; Gurr, 1970).

Perceived inequalities, or grievances, are commonly argued to be one of the main causes of conflict. Perceived inequalities arise when a state is seen to have failed at effectively protecting and supporting a section of the population (Cederman et al., 2013c). This is common within resource rich countries with a history of exclusionary policies from the government (Asal et al., 2015; T. C. Wegenast & Basedau, 2014). The role of the state is to distribute social goods to the people and Cederman et al. (2013) argue that when the government acts in the self-interest of profit for a subsection of society, they do not effectively redistribute wealth, resulting in inequalities (Cederman et al., 2013c). Consequently, people who perceive inequalities between themselves and other privileged groups can use the differences as a trigger for mobilisation to fight to change the status quo (Cederman et al., 2013c). Regan and Norton (2005) argue that inequality causes internal dissent and revolution resulting in a rebellion fuelled by movements in perceived deprivation (Regan & Norton, 2005).

Grievances are a collectivist strategy of conflict, where people fight to correct injustices afflicting entire groups along ethnic, regional, or economic lines (Cederman, Gleditsch, & Buhaug, 2013b; Cederman et al., 2013d). For groups to mobilise and fight, they need to identify with, or be perceived as part of the aggrieved population - for example ethnic groups that have long been ignored or marginalised through colonisation and continued exclusion following independence (Cederman et al., 2013c). Violence and repression can also accelerate identity formation, and mass mobilisation against the state, as people will see friends and family, or themselves, as the victims of unjustified violence from the state (Cederman et al., 2013b).

Grievances often have strong historical roots, countries that have had a long colonial history, and a history of violence and repression are argued to be more likely to experience violence as a result of grievances (Acuña, 2015; Cederman

et al., 2013b). A major contributing factor to state repression and violence is a large indigenous population or strong ethnic disparities (Cederman et al., 2013b). Acuna (2015) argues that a legacy of fighting for indigenous rights and self-determination will enable groups to mobilise repeatedly throughout history (Acuña, 2015). In particular, if indigenous groups are overlooked during negotiation settlements over mineral deposits located on indigenous land, this is likely to end in conflict of some form (violent or non-violent) (Altman, 2012).

For grievances to generate violent conflict, Cederman et al. (2013) argue that it is a two-step process. Firstly, the grievances must be generated, and then the grievances lead to violent conflict (Cederman et al., 2013b). However, grievances on their own are not enough to explain how violent conflict occurs, an opportunity to rebel (as discussed in more detail below), or a trigger is needed, for example a break down of social or political order as a result of failed elections, or famine (Cederman et al., 2013c). Grievances rest “upon the claim that an *injustice* has been inflicted upon undeserving victims. Grievances are normative protests, claiming violations of rights or rules” (Williams, 2003). Most conceptualisations of social conflict are problems of governance related to the distribution of revenue, transparency, or the formal political system (Acuña, 2015). This discontent is what enables groups to mobilise, groups that are economically deprived, marginalised or excluded from the political process (M Humphreys & Weinstein, 2008).

The type of regime can influence the likelihood of grievances occurring, some making grievances more likely than others. For example, state regimes that are dependent on popular support for accountability are less likely to create grievances, as opposed to autocratic (non-democratic) regimes (Cederman et al., 2013b; Regan & Norton, 2005). Additionally, ‘the response of the state has a large impact on the subsequent behaviour of the rebels’ (Regan & Norton, 2005). Non-democratic governments are likely to make less, or no attempt, to meet certain groups’ demands for redress, and are more likely to react with harsh violence and repression, pushing the opposition to use violence in response (Cederman et al., 2013b; Regan & Norton, 2005). Non-democratic governments are often unable or unwilling to fairly redistribute the revenue earned from resource extraction (Fjelde, 2009). Conversely, democratic governments are more transparent and accountable to the population, meaning that if the government behaved in a way that could create

grievances; for example unfairly distributing resource revenue, the regime is likely to be replaced through elections, rather than through violent conflict.

The benefits of a soldier joining a movement must outweigh the costs of not joining. These costs can include the violence they may be subjected to, protection from the movement for themselves and their family, or financial costs (loss of income due to fighting or gaining income from fighting) (M Humphreys & Weinstein, 2008; van der Ploeg & Rohner, 2012). The costs endured by soldiers are a major challenge to grievance theory where motivations become blurred, in particular, when financial incentives are involved. However, financial incentives are more relevant to opportunity theory, which will be discussed in the next section. Additionally, ethnicity and other social ties can act as a 'coordination device that could be exploited for collective mobilisation' (Cederman et al., 2013c). Rebel leaders can use grievances and pre-existing ethnic and social networks to recruit soldiers and support (Cederman et al., 2013b). Cederman et al. (2013) note that network connections can 'lower the social transaction cost of mounting demonstrations', because members are not likely to be alienated from the community if they are all in the movement together (Cederman et al., 2013b). Weinstein (2007) also notes that strong social ties enable rebel groups to create networks that are capable of using violence strategically, because they are able to construct strong relationships that yield information on defectors (Weinstein, 2007).

The main critique of grievance theory suggests that common interests and a target are not enough on their own to sustain a movement (Regan & Norton, 2005). Free riders are a problem within opposition movements based on grievances. Free riders are people that do not pay the price of rebellion through fighting, but reap the benefits the movement receives if they succeed (Blattman & Miguel, 2010; Regan & Norton, 2005; Snyder, 2006). Humphreys states that 'rational, self-interested individuals will not bear the costs of acting and will free ride' (M Humphreys & Weinstein, 2008). Wars occur when there are opportunities to form successful rebel groups; overcoming the free-rider problem is one way in which these opportunities arise. By offering material incentives to soldiers to support and fight, movements can prevent free riding (Cederman et al., 2013b; M Humphreys & Weinstein, 2008; Regan & Norton, 2005). Therefore, by overcoming the challenges of free riders, these methods

fall under the category of opportunity based theories, which will be discussed in the next section.

Opportunity

Opportunity theory suggests that groups will take into account and consider the costs and benefits of their actions, if people think they are likely to succeed at something; they are more likely to attempt it. With reference to violent conflict, if groups have access to soldiers, weapons, and the ability to fund and sustain their movement, they will be able to instigate a rebellion (Collier et al., 2009). Collier, Hoeffler and Rohner (2009) posit that 'where a rebellion is financially and militarily feasible it will occur' (Collier et al., 2009). If a potential rebel movement can predict or interpret the likely response to their actions, they will plan ahead in order to get the best possible outcome. For example, if low-level violence is likely to have the state respond with higher-level violence and repression, the rebel group may spend more time building up their arsenal, training their army, and preparing for civil war. Alternatively, if a potential rebel group expects the government to respond with negotiations and not repress the movement, the group will be more successful at recruiting, because the costs of rebellion will be lower for all involved. Collier et al.'s (2009) theory is focused on the financial opportunity for violence and conflict, led by a social entrepreneur (Collier et al., 2009).

Military feasibility refers to the ability of the rebel army to fight the states' military. If the state has 'effective localised control of its entire territory' the rebel army will have fewer chances to mobilise due to the states ability to detect and capture potential rebels (Collier et al., 2009). Additionally, if rebels know there will be challenges to their mobilisation, and their likelihood of success, they will be less likely to organise a rebellion (Collier et al., 2009). For example, Le Billon (2011) suggests that proximity to central government influences the likelihood of a successful rebellion, arguing that the further from central government, the more successful a movement will be because the government may struggle to monitor and police potential rebel movements further from the capital (Philippe Le Billon, 2011). Therefore, groups far from the capital are more likely to initiate rebellions. Other studies argue that In countries with high levels of inequality, ethnic fractionalisation, or a large marginalised community, the influence and strength of the government becomes weaker the further from the capital the

marginalised groups are located (Philippe Le Billon, 2011). In addition, the presence of natural resources in these regions could provide potential rebel groups with a source of income and increase the ease with which rebel groups can be formed (Asal et al., 2015; Macartan Humphreys, 2005).

The ability for rebel movements to finance a rebellion can be connected to their access to resources and their ability to utilise them to pay for rebellion (Macartan Humphreys, 2005). Collier and Hoeffler (2004) suggest that rebel groups will engage in criminal activities to benefit from natural resources (Collier & Hoeffler, 2004). Additionally, Fearon and Laitin (2003) note that natural resources increase the “prize” of the state, suggesting that the state becomes the target for rebel groups if the rebel group can gain control over the state they will gain access to the resource revenue, as Englebert and Ron (2004) argue was the objective for rebels in the Republic of Congo (Englebert & Ron, 2004; Fearon & Laitin, 2003; Macartan Humphreys, 2005). Humphreys (2005) also suggests that third parties can act in greedy ways that make the most of natural resources and lack of civil order, referring to the Democratic Republic of Congo, where companies and neighbouring countries foster rebellion in order to gain favourable access to the raw materials without the restrictions of effective governance (Macartan Humphreys, 2005).

Collier et al. (2009) argue that for a rational rebellion, the ‘motivations are likely to reflect benefits during conflict, rather than prospective benefits consequent upon victory’ (Collier et al., 2009). This suggests that individuals will be less likely to fight for the promise of rewards upon their victory, they need to be rewarded or paid during the conflict for it to be worthwhile, or feasible, for the fighters (Collier et al., 2009). ‘Further, if the rebellion is rationally motivated it is more likely to be due to benefits that accrue to the rebel leadership itself, rather than to the attainment of social justice for a wider group’ (Collier et al., 2009). In other words, rebel groups fight for the benefits they will gain throughout the fighting, and when there is an opportunity for violent rebellion, conflict entrepreneurs will make the most of the opportunities (Collier et al., 2009).

Fearon and Laitin (2003) argue that insurgency hinges on state weakness, ‘especially in peripheral areas with rough terrain’, which can provide opportunities for potential rebel groups to mobilise (Fearon & Laitin, 2003). A weak state is one with weak capabilities and a limited security reach, meaning

that groups located further away from central government are less likely to face counterinsurgency or punishment, making it easier for them to fight for secession or regional autonomy (Philippe Le Billon, 2011; Sorens, 2011). Le billon (2011) outlines the likelihood of regional groups fighting to take control of their region, instead of fighting to overthrow the state (Philippe Le Billon, 2011). A weak state, accompanied by the ability of the group to access natural resource wealth, will provide the means and opportunity for groups to fight for secession or autonomy. Sorens (2011) found in his study that local mineral abundance was 'positively related to secessionist or territorial conflict' among ethno-regional groups (Sorens, 2011). Opportunities such as lootable natural resources, alluvial gemstones and narcotics have been argued to be commonly used to fund conflicts (Macartan Humphreys, 2005; Regan & Norton, 2005; Snyder, 2006; Sorens, 2011; van der Ploeg & Rohner, 2012). However, the majority of scholars who argue the opportunity mechanism also admit that it is not a strong empirical argument for the root cause of conflict onset, and that it is more likely to influence the duration and intensity of conflict (Regan & Norton, 2005; van der Ploeg & Rohner, 2012).

Violent conflict is more likely when opportunity costs of fighting are low, that is, the rewards gained from participating in the violence outweigh the costs to individuals and groups (Cederman et al., 2013c; Collier & Hoeffler, 2004). The opportunity theory argues for individualist strategies of conflict, where 'natural resources invite warlords and their followers to enrich themselves by looting and rent seeking (Cederman et al., 2013c). Cederman et al (2013) note that war conditions often bring out the worst in people (Cederman et al., 2013c). Groups pursuing profit in chaos, through predation, in a resource rich nation will loot easily accessible natural resources such as alluvial gemstones (Cederman et al., 2013c). As opposed to minerals, oil or gas, which require capital-intensive investment and infrastructure to exploit. These resources may play a different role in the onset of conflict and the severity of violence experienced. Thies (2010) found that oil plays a direct, positive role on civil war onset, and that political instability was also significantly and positively related to the onset of civil war (Thies, 2010).

Protection, punishment and selective benefits all contribute to the rate of mobilisation of rebel groups. In particular, rebels will fight if they will benefit personally, benefits such as, protection from government retaliation, to avoid

punishment for not joining the movement, or if they receive material incentives (Regan & Norton, 2005). Additionally, the level of sophistication and aggression of a rebel group may influence people's decisions to fight. Rebel groups that are more aggressive, are more likely to use violence against individuals and villages, in order to recruit fighters (Regan & Norton, 2005).

The 'transaction costs', or the costs associated with fighting a civil war for the state, Thies (2010) argues are higher when some aspects of economy are lootable, for example alluvial gemstones, by internal rivals (Thies, 2010). The presence of lootable resources provide opportunities to hijack the revenue from the state; therefore increasing the costs for the state and raising the transaction costs because the state will have to pay for the conflict from another source (Thies, 2010). When there are low transaction costs, increased revenue and high bargaining power the state has a stronger security apparatus to prevent internal rivals from forming (Thies, 2010). However, natural resources are a 'natural source of revenue for both rulers and rebels' and can fuel predation (Snyder, 2006; Thies, 2010). Institutions that rely primarily on revenue from lootable resources to contribute to government income and to maintain order are susceptible to fiscal crises and instability (Snyder, 2006; Thies, 2010). Weak institutions as a result, are vulnerable to collapse and make it easier for rebels to organise against them (Snyder, 2006; Thies, 2010).

A strong state, with effective control of resource revenue and a strong military apparatus, is less likely to be the target of violence. A weak state, with ample opportunities for groups to access natural resource revenue, is more likely to experience conflicts. These arguments for state strength and rebels ability to access resources for financing refer to oil and lootable resources with reference to greed and opportunities as mechanisms for violent conflict onset (Bhattacharyya & Hodler, 2010; Fjelde, 2009; Kolstad & Wiig, 2009). Less well examined are situations where a poor and weak government, with an abundance of mineral resources that require intensive investment and infrastructure to extract the minerals. Oil extraction and weak governance has been examined in regard to transparency, corruption and the high likelihood of conflict, however, is capital intensive extraction more or less likely to encourage opportunistic rebels to instigate violence when the means of extraction are public or private? The type of extraction has not been a significant factor in discussions on natural resources and conflict, although, some studies suggest,

that the total value of mineral production matters, when it comes to rebel constituencies deciding whether to fight (Sorens, 2011).

Regan and Norton (2005) suggest that grievances may be enough to motivate mobilisation when initiating conflict (Regan & Norton, 2005). However, sustaining large-scale violence or civil war is not cheap, rebel organisations need financing (Regan & Norton, 2005). Cederman et al. (2013) and Weinstein (2007) note that opportunistic rebel groups tend to be more focused on the short-term material gains, rather than 'securing access to executive control over the state' (Cederman et al., 2013c; Weinstein, 2007). Regan and Norton (2005) note that greed and opportunity play a small but influential component of explaining violent conflict in resource rich countries (Regan & Norton, 2005). However, they argue that it offers a solution to the problems of defections and free riders that plague the grievance theory (Regan & Norton, 2005). Regan and Norton (2005) argue that looting can offer selective benefits for soldiers, to ensure they stay loyal and are rewarded for their efforts (Regan & Norton, 2005). Alternatively, a combination or hybrid theory can provide ample explanations for the onset of violence.

In this section, I have outlined the main theoretical frameworks used in the literature, grievance and opportunity. In the next section I will define the main argument of this thesis and how the onset and severity of violence is connected to private and state-owned resource extraction. Using existing theoretical frameworks, I will show how a combination of grievance and opportunity theories can effectively explain the connection between the ownership of resource extraction and the onset and severity of violence.

Main Argument

The theory formulated in this thesis suggests that groups will act on grievances against resource extraction when the opportunity arises, opportunities such as, a support base and access to resources to fight. The severity of violence present is dependent on the type of resource extraction present. Some movements may start with low-level violence, and the anticipated response they will determine whether they will escalate their efforts and use high-level violence that could result in civil war. I am arguing that when the resource extraction firm is state-owned, potential rebels will calculate that the state is

likely to respond with severe repression and high-level violence. For the movement to be successful, they will need to escalate their efforts if they want to stand a chance against the state. This argument suggests that only strong groups will initiate conflict and will be more likely to experience long conflicts. Weaker groups should opt out of rebellion altogether in this context. Alternatively, I argue that if resource extraction is privately owned, the costs of violence are high for all involved (state, firm, rebel group), which should result in the company being more likely to suggest negotiations to reach a settlement in order to avoid the escalation of violence. In this context, weaker rebel groups will initiate conflict more often, but these conflicts will quickly de-escalate as the incentives for a negotiated settlement is high. I will further explain these theories below.

The response from and the behaviour of groups may be different depending on what sort of resource extraction firm is present, whether it is state owned or private. The type of resource extraction firm may influence whether a rebel movement will need to resource themselves for large-scale civil war, or if low-level violence and unrest is enough to threaten the company/government and promote redress. In some cases, low-level violence or the threat of violence may be enough to pressure the government or company into responding, with either concessions or violence, in order to prevent disruptions to operations and therefore revenue. I argue that profit, reputation and access to security forces are factors that contribute to the relationship between communities and natural resource extractors, the potential sensitivity to these factor will drive whether the relationship is peace or conflict inducing.

Definitions

In this thesis I am using a relatively broad definition of violence. First, I use 'low-level violence' which refers to events that are likely to result in low fatalities, activities such as damage to property and extortion. Second, I use 'high-level violence' which refers to events that are likely to result in higher casualties, activities that suggest the indiscriminate use of violence, such as massacres and violent repression (Weinstein, 2007). Weinstein (2007) explains the levels of violence during conflict comparing opportunistic rebellions with activist rebellions (Weinstein, 2007). Weinstein uses 'intensity' and 'character' of violence to explain how violence changes throughout and between conflicts,

where intensity measures the number of killings, attacks and incidents of coercion, and character measures 'the range of violent behaviour rebel groups exhibit and the identity of their targets' (Weinstein, 2007). In this thesis, the activist rebellion provides insight into the behaviour of rebel groups, for example, Weinstein argues that activist groups are likely to be more strategic with their attacks, as more often than not, they are weaker than the government in which case, rebel groups will 'avoid conventional battles in favour of tactics that emphasise stealth and surprise' (Weinstein, 2007).

Opportunity theory could be useful for explaining how violence is connected to state-owned resource extraction, as the theory is more effective at explaining large-scale rebellion and civil war, which I predict will be more likely with state-owned extraction, than it is for low-level violence, which I predict will be more likely when a private resource extraction firm is present (M. L. Ross, 2004). The location of the resources may contribute to the level of response from the government towards attacks against infrastructure. The closer the infrastructure to central government, the more likely the response will be swift and strong, whereas, the further the infrastructure from central government, the less intense the response may be (Fearon & Laitin, 2003; Philippe Le Billon, 2011). The location of the resources has also been argued to determine how likely a secessionist conflict will be (Philippe Le Billon, 2011; Sorens, 2011). The weaker the reach of the government, the easier it is for rebels to organise, because they are less likely to be noticed and therefore not likely to be punished. However, the likelihood of the state influence being weak when a state-owned extraction company is present is unlikely.

The economic and development context of a state could also influence the type of extraction firm that invests in the state and therefore the type of violence it will experience. In order to entice foreign direct investment into their state, governments minimise regulations and conditions to minimise the costs and maximise the profits for the companies (O'Brien & Williams, 2010). This means governments reduce the checks and balances that are in place to ensure companies minimise their impact on the environment and communities, resulting in companies that are not accountable for their impact on the environment or the community, which can lead to grievances from the local population. An example of this is Bougainville in Papua New Guinea, where the government allowed the mining company a high level of autonomy, through

very low regulations resulting in environmental consequences. These consequences damaged the reputation of the mine and caused irreversible damage to the surrounding land, leading to disputes between the local population and the mining company, ultimately erupting into secessionist conflict (Paivi Lujala, 2010; Reuveny, Maxwell, & Davis, 2011). I will discuss the implications of deregulation and ownership of resource extraction later in this thesis, first I will outline the causal story of this thesis with particular reference to private extraction followed by state-owned extraction.

Private Extraction

H1 – Countries with private extraction firms will experience low-level violence and extortion.

Governments that lack the capabilities to facilitate development and economic growth on their own are often at the mercy of international private firms for their injection of money into the economy, through rents, export taxes, infrastructure, and job creation (van der Ploeg, 2011). However, foreign direct investment could backfire on the government, companies could bring in their own migrant workers, and often huge mineral projects will result in an increase in migration of people in search of work, leaving a growing population of unemployed people, often young men, which has been argued to increase the risk of conflict occurring (Blattman & Miguel, 2010; Collier et al., 2009; M Humphreys & Weinstein, 2008). Governments that are dependent on resource extraction companies for the rents they receive, are likely to be more sensitive to disruptions to production from potential rebels. Therefore, if community groups have issues with a resource extraction company and its operation, the company is likely to become the target of the opposition groups' aggression.

Potential rebel groups are often motivated by grievances, such as, land rights, environmental degradation, forced migration, or unequal distribution of resource revenue. The introduction of natural resource extraction can often result in such grievances being produced. Indigenous communities, in particular, can often be overlooked, or purposely excluded, during the development of resource extraction projects (Switzer, 2001). For example, indigenous communities in Australia were forced to relocate so that companies could construct and develop their extraction and production sites (Altman, 2012). Alternatively, groups may be motivated to extort companies because of

environmental degradation resulting from resource extraction. For example, Bougainville in Papua New Guinea, where members of the local community, in protest of the lack of compensation for environmental degradation, escalated attacks against the mining company into full-scale secessionist conflict (Boege & Franks, 2012; Paivi Lujala, 2010). Or finally, they may be protesting the lack of jobs they were promised when the mining companies signed agreements with the government (Acuña, 2015; Brunnschweiler & Bulte, 2009; Paivi Lujala, 2010; M. L. Ross, 2004; Zandvliet, 2005).

I posit that when resource extraction is privately owned, the state and company is more likely to enter into negotiation and grant concessions, when met with a potential rebel movement. Private extraction companies are more susceptible to disruptions to productivity because they are sensitive to the costs that arise from being accountable to a diverse range of actors: the government, shareholders of the company, and customers where they need to ensure their reputation is not damaged (Zandvliet, 2005). As a result, potential rebel groups, in anticipation of the mild response to their actions, are able to instigate many smaller attacks against resource extraction infrastructure. Potential rebel groups may believe that they will be more successful at getting what they want from private extraction companies through extortion, or threat of violence. Additionally, the state will be constrained in its behaviour to ensure uninterrupted production, especially if they are dependent on the revenue they receive from resource extraction. Some states may not have the resources or capabilities to extract natural resources without the company's investment. Therefore, states in this situation will be more likely to negotiate deals and push for concessions to be made, than to let the violence escalate to high-level violence or civil war. Low-level violence is more likely to affect the private company, because they are sensitive to costs such as; damage to extraction infrastructure that can disrupt production rates, and therefore revenue.

Furthermore, private firms are likely to have international repercussions if they are involved in violence and conflict; they have an international reputation to uphold for customers, shareholders and governments of other countries they operate in. For example, Talisman Energy in Sudan was accused of being complicit in the conflict by allowing government forces access to their airstrip to launch air raids; Talisman Energy was seen to be supporting a government involved in genocide (Switzer, 2001). If private firms are seen to encourage or

be complicit in high levels of violence, it could impact their ability to win contracts in other countries, they may experience civil resistance movements and boycotting by customers worldwide who oppose the firm's involvement in violent activities or the firm's lack of condemnation for violent movements (Switzer, 2001). Therefore, private firms are more likely to propose a solution or deal before there is too much damage to their infrastructure, their reputation and their profits. Additionally, private firms may be able to influence on the way the government may respond, if the government responds with violent repression, this will impact the reputation of the firm internationally; therefore, the firm will encourage the government to respond in a manner that is beneficial for all parties involved (Ballentine & Nitzschke, 2004). A swift response from the company to propose negotiations or a settlement, will act as a deterrent for the state to use its repressive powers, and potentially escalate the conflict. The actions of the company, the government and rebel groups differ when the extraction is state-owned, however, this will be discussed further below, next I will explain what motivates potential rebel groups to mobilise and fight using low-level violence when extraction is privately owned.

Opportunity theory suggests that rebels will consider the most effective methods that will enable their success; potential rebels are rational groups that consider the costs and benefits of mobilisation and instigating violence. Low-level violence, compared to high-level violence, against a private extraction firm, is more cost effective and more feasible, for both the firm and the movement. For low-level violence potential rebel movements do not need to raise a lot of capital to fund their efforts, they can stage small but targeted attacks against the company's infrastructure, they can organise protests in front of the company's offices, or mining sites, small events that cause a nuisance or disrupt their operations momentarily. Low-level violence is unlikely to escalate into an undesirable and expensive civil war. A civil war is likely to cost the extraction company because it is likely to suspend operations or cause expensive damage and disruption to production, and damage the company's reputation if picked up by international media. Low-level violence would be enough to pressure the company to respond to the violence with either increased security, or through proposing negotiations and diplomacy. The company would want a solution that keeps them out of the mainstream media, particularly internationally, that does not require diverting money from

production towards security and that deters the state from responding with extreme repression. Low-level violence also means lower costs to the movement, as it is easier to recruit supporters when the benefits outweigh the costs of joining, based on the belief that the state will not respond with strong violent repression. When resource extraction is privately owned potential rebels believe they are less likely to be met with violent repression and retaliation, and they do not need to prepare for full-scale civil war by building up their weapons arsenal. In other words, joining the movement is an attractive option for aggrieved members of the community.

The response of a company to aggression from rebel groups may depend on the stage of development the extraction operation is at. In particular, if a company is in the early stages of exploration, or pre-production, the company may be dependent on the government, and the concessions they have granted, for financial support, such as, tax breaks and low tariffs. If there is a change in government throughout the exploration and pre-production period, the extraction firm may become the main source of campaign material. For example, in Ghana during the 2008 election, the campaigns were appealing to the people and promising that the profits of the planned oil extraction, from the partnership between Kosmos Energy and the government, on the Jubilee field project, will make it directly to the people of Ghana (Boynton, 2013). As a result of the financial crisis of 2008, Kosmos Energy were struggling financially, and were working deals with all the candidates, and the existing president to ensure that Kosmos would continue to receive favourable tax rates and financial agreements (Boynton, 2013). Low-level violence, such as sabotaging company property, could be a feasible strategy for potential rebels that want to punish the extraction company or the outgoing government for perceived inequalities.

State-owned extraction companies

H2 - Countries with state-owned extraction firms will be more likely to experience high-level violence.

When there is a state-owned resource extraction company present, I posit that the government is likely to respond to rebel groups who attack the resource extraction infrastructure with violence. State-owned extraction companies share the costs of the infrastructure and production with the government.

Therefore, when potential rebel movements attack the extraction company, they are attacking the government. The more a government is dependent on the revenue from resources, the more aggressive the response to rebellion is likely to be. Countries with a state-owned resource extraction firm will be more likely to experience high-level violence, as opposed to low-level violence, because the shared costs mean the government will be able to absorb the costs of extreme violence and repression because it has a monopoly on power. Additionally, these states are not accountable to an international market or shareholders; therefore, they are not as concerned for the way their behaviour will be received internationally, in comparison to a private firm.

Governments have the capability to use force to defeat aggressive movements against its resource infrastructure, and are more likely to use excessive force, especially if the government is highly dependent on the revenues earned from the resource extraction. States that are dependent on resources for their revenue will use their power and capabilities, for example the army, in an attempt to secure an uninterrupted flow of revenue from resource extraction. Therefore, these states are more likely to use violence and repression to quash potential rebel movements that attack resource extraction infrastructure. The government is more likely to respond to violence with full military force, because it will be able to absorb the costs of rebellion - loss of life, disruptions to production and profit, and damage to reputation - and has the military capability to shut down potential rebellions with high-level violence. If mineral extraction is damaged or disrupted as a result of rebel action, the government will be able to absorb the costs easier than a private company, and will be less likely to face international backlash.

Opportunity theory assumes that potential rebels will not attempt a rebellion if they do not have the means to fight, meaning, if the potential rebels do not have a sufficient support base, and willing soldiers, they are unlikely to get very far (Collier et al., 2009). In order to recruit willing participants in the rebellion, potential fighters will weigh up the costs and benefits of conflict, if they think the costs are higher than the benefits, they will be unwilling to join the movement (M Humphreys & Weinstein, 2008). Potential rebels, anticipating the response from the government, will see that low-level violence will be unlikely to succeed; therefore, they will need to be able to endure a severe repressive response from the government, and will need to build a strong insurgency

movement. As a result of high-level violence, these rebel groups are more likely to see prolonged conflict and civil war. For potential rebels to perceive conflict as feasible, they will need to have a fair assessment of the government's capabilities and the power of the military. Therefore, only strong groups will initiate rebellion and the weak groups will opt out, as the stronger the group, the more capable they are of initiating rebellion using high-level violence, and surviving the longer conflict.

When a State owned extraction company is present, potential rebel groups will need strong resolve, they will learn quickly that low-level violence will not get them far, and will need to slowly build their strength to be able to escalate their aggression. Recruitment to the rebel movement, as a result of government violence and repression, may increase from witnesses, adding soldiers and supporters to the movement. Alternatively, the states' reaction may even drive people away from the rebels because of fear of punishment from the government, strong government repression may result in mass defections, and consequently, the rebel movement losing traction and falling back into the shadows. We may however see the more aggressive the response from government, the stronger the community and the rebel movement, as their beliefs and purpose may be reinforced by the violent actions of the government forces.

Summary

In this chapter I have outlined the common theories used to explain how natural resources contribute to the onset of violence, and have formulated a causal story for how both private extraction companies, and state-owned extraction companies can influence the actions of potential rebel groups, the government response and the level of violence used. I argue that states with private resource extraction are more likely to experience low-level violence and extortion as a response from aggrieved groups/sections of the community affected by the resource extraction process, and consequently, are less likely to see civil war onsets. The likely response to extortion will be concessions and agreements made in order to reduce the impact of the actions on production, profit and reputation for both the company and the government that may be dependent on the rents received from the extraction process. Potential rebel

movements are aware of the sensitivity to costs, they anticipate the government response and cater their actions accordingly; meaning that people will be more willing to join their movement because the costs of joining are low, while the benefits and likelihood of success are high.

Alternatively, countries with state-owned resource extraction will be more likely to experience high-level violence with probable escalation to civil war. Violence against state-owned extraction firms is likely to result in a severe response from the government, because it has the capability and the precedence to use any level of force it deems necessary to quash potential rebel movements. When extraction is state-owned, governments are better equipped to absorb the costs to profit, infrastructure and reputation, compared to private owned resource extraction which is more sensitive to potential costs to their reputation and the long term effects to their profit. Potential rebel groups will be aware that low-level violence will be unlikely to hurt the target of their aggression, and will prepare for escalation of violence and a prolonged conflict. The potential rebels will need soldiers with strong resolve, which may be aided by the aggressive state response which could push people towards joining the rebel movement, increasing their capacity and their chances of success.

4. Methodology

Introduction

In this chapter I will outline the processes that I will undertake to test the effect that ownership of resource extraction has on the level of violence in Latin America and Africa, 1989-2014. As shown in the previous chapters of this thesis, there is a gap in the literature around the ownership of resource extraction and how this can affect the level of violence a state may experience. In my theory chapter I have also suggested that the level of violence likely to be seen in an environment with resource extraction will vary, depending on whether resource extraction is owned by a private company or a state owned company. In the following sections, I will describe my research design and data collection starting with the selection of my dependent variable, followed by the decisions that went into coding my independent variables and the selection of my control variables. Lastly, I will outline my proposed method of analysis and the logic that supports these decisions.

Research Design

In this thesis I am using a combination of descriptive, bivariate and multivariate analysis to test the likelihood that the levels of violence a state experiences and the type of resource extraction companies present, are related. An alternative way to investigate the effect that ownership of resource extraction can have on the level of violence would be a qualitative case study of a selection of countries that have various extractive ownership structures, and have experienced different levels of violence. I have opted for the quantitative method, as opposed to qualitative, because with this method I can cover a larger sample size in the limited time awarded to a master's thesis. Additionally, the quantitative method requires specific hypotheses which will enable me to say how likely it is that I am wrong, and provide some numerical estimate to how strong a relationship between variables is. The quantitative method is the most suitable method for investigating a) whether there is a relationship between ownership of resource extraction and the severity of violence experienced, and b) what the nature of this relationship is.

The quantitative method will enable me to make some predictions for states that have similar resource extraction ownership patterns and use this data to analyse the vulnerability of states to the occurrence of violence, and the severity they are likely to experience. The qualitative method is less generalizable and would limit me to explaining the situation and context of the case study countries. The qualitative method would make it problematic to assume that these situations could be transplanted into other countries. With my results, I will be able to analyse how the severity of violence in armed conflict varies with different legal frameworks and practices of resource extraction. These findings could provide policy recommendations for countries that may be in similar positions, in particular, how to structure resource ownership policy in regards to distribution of revenues, and the governance of minerals, oil and gas. In addition, policy officials could anticipate how susceptible countries may be to violence as a consequence of resource extraction legislation, and prevent situations from deteriorating. In general, the results from this thesis will contribute to scholarship and understanding of negative peace, and promoting ways to bring about the absence of conflict and violence.

Sample size

My sample is of all self-governing countries within Africa and Latin America from 1989-2014, distributed across country-years. I have selected these two regions because they are both rich in a range of natural resources; they both have a history of colonialism; and have experienced a range of conflicts. I have limited my selection to these two regions because of time restraints, as such; the scope of this thesis is limited to describing and showing the relationships between resource extraction and violence in these regions. I decided to use the time period starting in 1989, in an attempt to minimise the effect of data constraints from the availability of reliable data, and the effect of proxy wars, instigated by alliances through the Cold War, may have on the results produced in this analysis. Additionally, the majority of the states within my analysis had obtained independence from their former colonial powers by 1989, and had already experienced, and endured, economic problems (Ericsson, Massey, & Petrilli, 2011) (Omeje, 2008). Africa and Latin America have been used in much of the literature on resources and conflict as examples of resource wars, for example; Acuna (2015) in Peru, Engelbert and Ron (2004) in Congo and Guidolin and La Ferrara (2007) in Angola (Acuña, 2015; Englebert & Ron, 2004; Guidolin & La

Ferrar, 2007). Any further research will be suggested in the conclusion. In my sample I have 2162 observations of country-years that I have coded for resource extraction ownership.

Dependent Variable

This thesis aims to explain the incidence of low-level violence and high-level violence. The level of violence is measured through the number of fatalities that arise from violent events, which I have sourced from the Uppsala Conflict Data Program (UCDP) Georeferenced Event Dataset (GED) (Croicu & Sundberg, 2015). I am using this dataset because it captures information on lower casualty rates compared to other conflict datasets. For example, the UCDP Battle Related Deaths dataset captures fatalities per conflict year, meaning that this dataset does not capture casualty numbers if no conflict occurs. By using the UCDP Battle Related Deaths dataset I would lose the smaller scale conflicts that I am interested in. On the other hand the GED dataset captures information on conflict when it results in at least one direct death, and includes conflict involving informally organised groups (Croicu & Sundberg, 2015). The GED dataset defines fatalities to be 'a death relating to either combat between warring parties or violence against civilians' (Croicu & Sundberg, 2015). Additionally, in this dataset I am not differentiating by the type of conflict. The dependent variable in this thesis includes all non-state violence, state based violence, and one-sided violence, when an event results in at least one fatality, it is included in this dataset.

To create my dependent variable I used the 'best estimate of total fatalities' in the GED dataset to represent the levels of violence I wish to show in my analysis (Croicu & Sundberg, 2015). In Stata I collapsed the dataset into country-year observations and used the sum of the best estimates for fatalities for the given country-years to represent the levels of violence. The variable in the GED dataset for best estimate of fatalities includes the sum of side a deaths, side b deaths, civilian fatalities and deaths unknown (Croicu & Sundberg, 2015). I have organised the level of violence into seven categories, coded from 0-6. I have coded country-years as a 0 if there were no fatalities recorded in the GED dataset. The level of violence is coded as a 1 if the country-year had less than 25 estimated fatalities (1-24 fatalities), a 2 if the estimated fatalities were

between 25-50 (25-49 fatalities), coded as 3 if the fatalities fell between 50 and 100 (50-99 fatalities), coded as a 4 if the fatalities were between 100 and 500 (100-499 fatalities), coded as a 5 if the fatalities were between 500 and 1000 (500-999 fatalities) and finally, coded as a 6 if the best estimate of fatalities were over 1000. Additionally, in the robustness tests, I will aggregate the levels of violence further, into no violence, low violence, medium violence and high violence; where low violence represents fatalities from 1 to 99, medium violence represents fatalities from 100 to 999, and high violence is 1000 fatalities and above.

Independent Variables

In order to test the effect that ownership of resource extraction has on the levels of violence, we need a variable to show the type of ownership. I have manually coded all country-years for self-governing countries of Africa and Latin America for the years 1989-2014 for the dominant type of resource extraction company, which occurs within each country-year. I have four independent variables, which represent state-owned mineral extraction, state owned oil and gas extraction, privately owned mineral extraction and privately owned oil and gas extraction. In this dataset, I have 84 countries and a total of 2162 country-year observations coded across Africa and Latin America. The process of manually coding the countries in this dataset involved going through all African and Latin American countries to investigate; a) if they had mineral resources being extracted, such as coal, silver, gold, copper, among others, and/or oil and gas, and b) what sort of company was involved in the extraction of said resources, whether the company was state-owned or private. I have not used specific selection criteria for when to code a countries resource extraction, criteria such as 10% of GDP contributed by natural resource extraction that was used by Collier, Hoeffler and Rhoner (2009) and Collier and Hoeffler (2012) in their research (Collier & Hoeffler, 2012; Collier et al., 2009). I have used my independent variable to represent any valuable natural resource extraction; I will explain what I mean by valuable natural resources further on in this section.

I have coded countries to have either 'state' or 'private' oil and mineral resource extraction, or no resource extraction. I have four independent

variables to represent these categories, each year from 1989 through to 2014 has been coded as either a '0' if there is no resource extraction or a '1' if there is an extraction company. I have coded for the dominant ownership type, meaning that a state can have either state or private extraction, but not both, in each aspect of natural resource extraction ('mineral' and 'oil and gas'). For example Kenya from 1989-1995 had state owned mineral extraction, which operated the Kimware ore deposit. The fluorspar project transitioned to a privately owned firm from 1996, since then, other mineral deposits, iron ore and gold, have been discovered and extracted by private firms (Thomas R Yager, 2015). Another example from my dataset is Sudan which has state-owned mineral extraction and private oil extraction from 1992-2014. Prior to 1992 oil was state owned, but entered into agreements with other international oil companies through projects such as Greater Nile Petroleum, where the state-owned oil company (Sudapet) holds 5% interest, along with Indian, Malaysian and Chinese national oil companies, and Star Oil Co. where Sudapet holds 34% interest (Thomas R. Yager, 2015). Alternatively, the mineral industry in Sudan is dominated state-owned ventures where either the government holds the majority interest, for example the Ariab Mining Co. where the government holds 56% interest in the gold mining operations, or the state-owned Sudanese Mining Co. which produces gypsum and mica (Thomas R. Yager, 2015).

In order to code specific countries and their mineral endowment, I used the United States Geological Survey's Mineral Yearbook data as my research base (Bernstein, Eros, & Quintana-Velázquez, 2006; Eros & Candelario-Quintana, 2006). The USGS mineral yearbook provides resource data from the early 1990s through to 2013 in their annual state reports (U.S Geological Survey, 2010). The annual reports show specific information on mineral policy, exploration, exploitation and export activity (U.S Geological Survey, 2010). In some cases they provide data on ownership shares of individual mineral projects, which allowed me to average the share of state-owned companies and private companies involved in a given state on any year that information was provided for, in order to code a country-year as having either state-owned or privately owned natural resource extraction. Often countries have both state-owned and private firms working on different projects around the state and in joint ventures. In cases where both private and state-owned firms worked, I looked at the overall distribution of firms across the projects and their control of the

projects, whether they held majority interest in the projects or whether there were more privately owned operations than state-owned. When the majority of the projects were controlled or operated by a private firm with state-owned contributions, this was coded as private extraction. Additionally, if there was a relatively even distribution of state-owned and private companies across the extraction sector, I looked at the annual productive capacity of the operations, the maximum and operation can produce annually, in particular the projects that had the largest capacity are considered more influential, and coded accordingly (Torres, 2004). For example, a state may have four mineral extraction projects active in a given year, two are privately owned, and two are state-owned, but one of the privately owned projects' capacity was double that of the state-owned projects, I would code this country-year as privately owned. For example, Venezuela's oil and gas industry, in 2004 there were five projects in total, two of which were state-owned. The state-owned sector produced an annual capacity of 25000 units in natural gas and 1393 units of crude petroleum, compared to a total of 147 units of crude petroleum produced by the private sector. Therefore, I have coded Venezuela in 2004 as state-owned oil and gas (Torres, 2004).

An alternative way to code my independent variables would be to measure the value of resource extraction as part of the economy in order to show the importance of the resource to the government. Due to time restraints, I chose to use the annual capacity and the number of projects as the measure for coding my independent variable, as opposed to looking at the value of the resources as part of a state's economy. I was able to use the annual capacity, provided through the USGS annual reports, to measure whether the majority of projects and production were private or state-owned. Whereas, if I was to measure the proportion of a state's GDP that was made up by natural resource exports, and who owned what proportion, this would involve a lot more time and resources, that I could not afford to direct towards this method of coding. The method that I undertook will still capture the value of resource extraction to the government, however will not be able to measure how much the government values resource extraction over other aspects of a state's economy.

A State-owned company is any company that holds majority shares in the majority of the extraction projects in a country-year that is owned by the

government or is government controlled. Therefore, for a country-year to be coded as a '1' for 'StateMineral' or 'StateOil' the majority of operations needed to be either owned by a government company, or the government's company need to have majority shares and therefore the controlling interest in the project. In many countries, there is a policy in place that ensures that the government has an interest in the extraction operations. Government interest often starts at 10 percent as a minimum, to majority interest, which starts at 51 percent. These policies are common in developing countries, as it is a way for the government to ensure that they receive sufficient revenue from the exploitation of their resources. In addition, some projects are the result of 'joint ventures' between state-owned companies and private companies. Joint ventures are often evenly split (50:50) between the two (or more) companies involved. In joint ventures, one company will always have the position/role of operator. This is the company that is the face of the project, and the other partners play more of an investor role, they provide some of the capital to establish and build the project, in return for a share of the profits. In cases of even joint ventures, I have based my coding on the operating company. If the operator is the state-owned company, then this contributes to the share of the sector controlled by state-owned extraction company.

A private company is any company involved in resource extraction that is not owned by the government of the state where resources are being extracted. This category includes state-owned companies working in other countries, for example Sonangol of Angola, which works in Congo Brazzaville, or Petrobras of Brazil, which operates in Uruguay and Tanzania among others. State-owned companies operating within its government's borders are coded as state-owned, but when they begin operations abroad, they are included in the coding as private sector, because they behave the same as a private company would. Most commonly, private companies are large multinational corporations that have operations in many countries around the world. Two examples are British Petroleum, which has oil, petroleum and natural gas operations in the United Kingdom, Angola, and Trinidad and Tobago, among others, or Rio Tinto, which started out in Australia and is now involved in the extraction of iron ore, aluminium, copper, coal, gold, diamonds, and other minerals around the world (British Petroleum, 2016; Rio Tinto, 2016). Private ownership incorporates private domestic companies, companies that originate

from the state of operation, but are listed as a public company, and do not have majority shares controlled or owned by the government. Additionally, this coding includes privatised former state companies, or state-owned companies that list their shares on the public market.

For a project to be included in the coding it needed to be in the production stage of operations. This means the projects need to have the infrastructure built and completed, and be producing their intended product for export. There are many stages through which a mineral project goes before it reaches the production stage, such as, exploration, drilling, feasibility and construction (Office of Technology Assessment, 1979). The stages that precede production in the development of a mineral or oil project are not relevant to my study because at any stage the company can withdraw from the project without major costs. At any point in time there can be numerous companies, state-owned and private, participating in exploration in any state. Exploration companies are not permanent or influential enough to be sufficient for potential rebels to launch a sustained rebellion, because they are not contributing to a state's economy nor do they have physical infrastructure that could influence potential rebels' decisions to instigate violence (Fjelde, 2009). Some studies have found that oil discoveries are correlated with conflict onset in very poor countries (Bell & Wolford, 2015; Cotet & Tsui, 2013). However, scholars argue that this conflict is motivated by commitment problems that arise in the brief window before the state receives the oil revenues that can be used to increase spending on the military and the security apparatus (Bell & Wolford, 2015; Cotet & Tsui, 2013). The presence of physical infrastructure, such as an oilrig, mining buildings, and the equipment and machinery used for the extraction of minerals, suggests that there will also be staff present. Potential rebels can use infrastructure and staff as a source of extortion, through threatening to damage or kidnap staff, in an attempt to seek compensation or concessions. Therefore I have included projects into my coding if they have the infrastructure built, and there is production occurring.

I have disaggregated my independent variables in an attempt to capture what other studies have not been able to. Other studies that have looked into the effect of natural resource extraction and conflict have limited their scope to 'high-value resources' such as oil and precious gemstones (diamonds) (Collier & Hoeffler, 2012; P Lujala et al., 2005; T. Wegenast, 2015). Because I am

looking at the effect of ownership by the type of company participating in the mineral sector, I have expanded my scope, compared to other studies, so that I can investigate the effect on minerals in addition to oil and gas (T. Wegenast, 2015). In this study I have included fuels such as oil and gas, and mined minerals such as bauxite, coal, copper, gold, secondary diamonds, uranium, phosphate, and tantalum, to name a few. I have separated oil and gas from minerals because in most countries, the same companies that extract oil also tend to be involved with the extraction of natural gas. Natural gas deposits are often found in the same area as oil, where oil companies can use similar machinery and equipment to extract the commodity without much increase in costs to the company (Morse & Turgeon, 2016).

I have excluded construction minerals from my coding because they are not considered as “high value to weight” resources. Construction minerals do not require extensive extraction infrastructure or knowledge of complicated geological or market patterns, and are not often used for export revenue. Minerals like limestone is mostly used in the domestic market of a state, and therefore, does not compare with other minerals that are extracted by large extraction companies and sold on the international market, resulting in large revenue from rents and taxes for the government (Miller, 2014). Ultimately, if a natural resource requires specialised infrastructure and staff to extract it, and it is likely to earn a company and/or the government significant revenue from the costs of extraction, marketing and trading internationally, it has been coded for in my dataset. The decision to exclude some minerals based on how valuable the mineral can be for extraction companies, governments and potential rebel groups meant I did not code for minerals such as; limestone, asbestos, arsenic, cement, clays, salts, sand, and gravel (U.S Geological Survey, 2010).

Control Variables

In order for the results from this thesis to be robust, valid and reliable, I need to control for other variables that can be considered as alternative explanations for the level of violence experienced and the presence of state or privately owned extraction structures. In this section I will outline the known variables that could be considered plausible causes of violence. The compositional differences between countries that could suggest plausible explanations are

represented by the control variables listed in this section (Pollock, 2012). These are variables that I will hold constant during my analysis so that we can see the effect that my independent variable, type of resource ownership, has on the dependent variable, level of violence.

I will control for gross domestic product (GDP) per capita, the type of political regime, and resource rents. Most of the control variables used in this thesis, for example GDP per capita, were sourced from the World Bank's World Development Indicators database (The World Bank, 2015). In addition to this database, I have also used the polity scale database to control for the regime type of countries (Marshall, Gurr, & Jaggers, 2014). These variables and the logic for their inclusion are explained in more detail below.

GDP per capita

Fearon and Laitin in their 2003 article outline the main conditions that contribute to the onset of insurgency (Fearon & Laitin, 2003). Included in their analysis was GDP per capita as a representation of how wealthy a state is. In order to ensure that countries are comparable, GDP is measured per capita so that despite the size of a countries population, we can compare the wealth (M. Ross, 2013). Additionally GDP per capita can reflect a state's development status and its ability to provide more for the population. Mac Ginty and Williams (2009) note that poor countries are less able to provide basic needs for its population, and therefore more likely to result in grievances which encourage potential rebel groups (Mac Ginty & Williams, 2009). In my analysis I have logged the GDP measures in order to control for the outliers at the top of the distribution of GDP data that may skew the results. Additionally, GDP per capita can be utilised by private resource extraction firms in their decisions on whether to invest in regions, because GDP per capita reflects a countries economic capacity and how well a company can grow within the region (Cederman et al., 2013c).

Polity scale

Ted Robert Gurr first directed the research of the Polity 1 project in 1974 that created the basis for the current polity project (Marshall et al., 2014). The polity project investigates the type of regimes countries have, and reflect this on a continuum that ranges from -10 for autocratic to 10 for democratic regimes (Marshall et al., 2014). Additionally, regimes that fall on the polity scale between

-5 and +5 are categorised as anocracies, these regimes tend to be plagued by political instability, which can exacerbate existing social and political cleavages and lead to violence (Fearon & Laitin, 2003; Marshall et al., 2014). It has been argued that the type of political regime could affect the likelihood of violence (Marshall et al., 2014). In particular, Marshall, Gurr and Jaggers (2014) argue that anocratic regimes are more likely to experience violence because of the instability that accompanies the type of regime (Marshall et al., 2014). Democratic regimes are more accountable to their populations, which suggests that they will be more transparent and therefore more likely to redistribute wealth fairly (Bhattacharyya & Hodler, 2010; Fearon & Laitin, 2003). In comparison, autocratic regimes may be more likely to hold on to information and revenues earned from resource extraction which in turn can stimulate grievances and groups wanting to seek to overthrow or fight the regime (I de Soysa & Fjelde, 2010; Fjelde, 2009) (Bhattacharyya & Hodler, 2010). Additionally, democracies are more likely to have private ownership of resource extraction than autocratic regimes (Bhattacharyya & Hodler, 2010). Using the polity scale for this thesis will enable me to control for the effect that regime type will have on my dependent variable, level of violence.

Resource rents

Resource rents have been argued to lead to corruption, misappropriation of funds and fraud by some governments (Bhattacharyya & Hodler, 2010; Fjelde, 2009). Resource rents are the returns on resource extraction, beyond what is needed to recover costs and investor return (Natural Resource Governance Institute, 2014). Governments that suffer from poor governance and high resource rents, also referred to as the 'resource curse', are often the targets of rebel groups fighting for access to resource rents, or redistribution of rents (M. Ross, 2013; Thies, 2010). Alternatively, some governments rely on resource rents, instead of taxes, as a source of income, and therefore are no longer accountable to its citizens. This creates issues for governance and for populations not receiving necessary public goods compared to non-resource nations (Fjelde, 2009). Resource rents are also a measure of resource extraction, therefore, including them as a control variables will minimise the possibility that the results are being driven by comparing 'any resource extraction' to 'no resource extraction' (The World Bank, 2015). In order to control for the effect of resource rents on my dependent variable, I have included variables that

measure mineral resource rents, and an aggregated oil and gas rents, as a percentage of GDP from the World Bank development indicators dataset (The World Bank, 2015).

Method of Analysis

Bivariate Hypothesis Tests

Bivariate hypothesis tests are used to help us answer the question of “are x and y related?” (Kellstedt & Whitten, 2008). I will use the chi-squared test of significance to assess the relationship between ownership of resource extraction and levels of violence (Pollock, 2012). The p-values produced from this analysis will show me how statistically significant the relationship between my independent and dependent variables may be, by allowing me to either reject or accept the null hypothesis that ownership of resource extraction and level of violence are not related (Kellstedt & Whitten, 2008; Pollock, 2012).

Statistical significance is represented by the p-value produced from multivariate tests. The p-value shows the probability that the relationship between two variables is zero, given the variability in the data (Kellstedt & Whitten, 2008). The lower the p-value, the greater confidence we can have that there is a systematic relationship between two variables (Kellstedt & Whitten, 2008). In order to say a result can be statistically significant, most social scientists use the standard p-value threshold of .05², or the more stringent threshold of .01 (Kellstedt & Whitten, 2008). In this thesis I am using a threshold of .05 to show a statistically significant result, and .01 will show a highly statistically significant result (Allison, 1999). If my results yield a p-value of .05 or less then this will allow me to reject the null hypothesis, that ownership of resource extraction and level of violence are related by chance (Pollock, 2012). If the p-value is greater than .05 then this suggests that I cannot reject the null hypothesis, and that the likelihood of my dependent and independent variable are related is because of random chance (Pollock, 2012).

In anticipation of my hypothesis tests and the complexity of my independent variables (ownership types) I have created additional aggregated variables. I

² This is an arbitrary cut-off used commonly in quantitative analysis (Allison, 1999; Gordon, 2010; Kellstedt & Whitten, 2008; Pollock, 2012).

have aggregated the four main independent variables for resource ownership into two variables that I will use to describe the data and through the bivariate tests. I have modified my independent variables, so that my bivariate tests and graphs that describe my data can show the relationship when there is no extraction of any form, and when there is private and state-owned mineral extraction, or private and state-owned oil and gas extraction.

Multivariate Regression

The method I will be using for my multivariate regression is an ordinal logistical regression model. I am using this method because it is best suited to the type of dependent variable I am using in this analysis, an ordinal variable (Kellstedt & Whitten, 2008). Multivariate regression aims to show the magnitude of the effect that the independent variables, the type of ownership of resource extraction, may have on the dependent variable, the level of violence (Allison, 1999). Throughout the multivariate regression I will be using the four independent variables that represent private and state-owned mineral and oil and gas extraction (private mineral, state-owned mineral, private oil and gas, and state-owned oil and gas). Conducting an ordinal logistic regression will allow me to control for other factors that could contribute to the statistical significance produced in the bivariate regression. From this method I will be able to show the direction of the relationship, through reading the coefficients produced, and whether they are positive or negative. A positive coefficient will represent an increase in the level of violence experienced when a private resource extraction firm is present. Alternatively, a negative coefficient will suggest a reduction in the level of violence experienced when the mode of resource extraction is private.

Robustness tests

In order to ensure that my results and the subsequent analysis are as robust as possible, I will conduct a number of robustness tests. Robustness tests will show whether my results have been driven by alternative explanations or if they are skewed by any problems with the tests I have conducted. Firstly, the specificity of my hypotheses provides the first opportunity for my assumptions to be proven wrong. I have proposed that private resource extraction will results in low levels of violence, and that state-owned resource extraction will results in high-level

violence. The more specific the hypothesis the more chances there are for the results to support alternative explanations (Pollock, 2012).

Secondly, the possibility of reverse causation is not a likely alternative to my hypotheses. It does not seem statistically possible, let alone plausible, for the level of violence to have an effect on the type of resource extraction. In other words, it does not seem to fit that companies, governments and other relevant stakeholders will decide whether to invest in resource extraction – whether they chose state owned or privately owned companies – based on the level of violence the state experiences. However, the level of violence other countries experience, could influence policy makers and companies decisions around potential resource extraction investments, particularly with the way that they conduct their business, and whether the state is likely to take over production.

Thirdly, I will conduct more ordinal logistic regressions with additional control variables, and to test how the results perform when disaggregated into region. These regressions will provide insight into alternative explanations for the relationship between the level of violence and the ownership type of resource extraction. First, I will repeat the first ordinal logistic regression with extra control variables, unemployment and year. I am including these additional control variables because they could affect the level of violence. Studies have shown that unemployed people are a group at higher risk to joining rebel movements (Fearon & Laitin, 2003, 2011). Additionally, unemployed locals could be considered to have grievances against resource extraction companies, as often their production comes with the promise of jobs (Philippe Le Billon, 2011; Zandvliet, 2005). I will also include year as a control variable to control for the number of conflicts over time, and ensure that this does not drive the results (Blattman & Miguel, 2010).

Fourthly, I will conduct multinomial tests, in which I will use further aggregated variables to represent my dependent variable. The aggregated dependent variable is made up of categories that will measure no violence, low-level violence and high-level violence. This test will show how the ownership of resource extraction will affect each level of violence independently (Gordon, 2010). The results from this test will help illustrate the difference between the levels of violence, as there is a difference between jumping from low-level violence measured by 1-24 fatalities to high-level violence measured as over

1000 fatalities. Additionally, if the results from this test hold from the multivariate regressions, this will enable me to either accept or reject my hypotheses and provide ample points for discussion of the effect that ownership of resource extraction has on the severity of violence countries experience.

Fifth, I will conduct further logistic regressions to test whether the relationships between the level of violence and the type of ownership of resource extraction holds, when using comparing ownership to no extraction. I will conduct an additional ordinal logistic regression to show how the level of violence changes when comparing both private and state-owned mineral and oil and gas extraction to no extraction. Following these tests, I will conduct another multinomial logistic regression in the same way. This test will show how private and state-owned extraction (mineral and oil and gas separately) affects low-level, medium-level and high-level of violence, compared to no extraction.

Finally, I will conduct ordinal logistic regressions to test if the relationship, between private resource extraction (mineral extraction and oil and gas extraction) and the level of violence, holds when I disaggregate the data into regions. These regressions will demonstrate the effect that private resource extraction has on the level of violence in Africa and Latin America separately. From this analysis I will be able to show if there is a difference, between the two regions, in the relationship between ownership of resource extraction and the level of violence.

Summary

In this chapter I have outlined the aim, purpose and projected analysis for this thesis. I have explained how I have collected data, and the reasons for doing so, for my independent, dependent and control variables. I have defined the reasons and process for the method of analysis adopted for this study and why these methods are most suitable for my dataset and what is being measured. I have also explained how I will conduct robustness tests that will show the strength of my results, whether they hold throughout, and the conditions under which they will support my hypotheses. Based on data from the UCDP, this research measures the level of violence and provides new data on natural resource ownership. Through a combination of bivariate and multivariate tests

this thesis will show how the type of ownership of natural resource extraction effects the level of violence a state may experience.

5. Analysis

Introduction

In this chapter I will describe how I have analysed my data to estimate the effect that ownership of natural resource extraction has on the severity of violence in states in Latin America and Africa from 1989-2014. First I will describe my data, and show some initial illustrations of my independent and dependent variables and how they interact with each other. Then I will show some bivariate hypothesis testing. Lastly, the chapter displays the results of ordinal logistic regression analysis that will enable me to illustrate whether we see a positive or negative relationship between the type of ownership and the level of violence. The analysis provided in this chapter will enable me to accept or reject my hypotheses. My first hypothesis predicts that countries with private extraction firms will experience low-level violence and extortion, my second hypothesis predicts that countries with state-owned extraction firms will be more likely to experience high-level violence and civil war onset. The results show that there is a negative relationship between private ownership, in both oil and gas extraction and mineral extraction, and the level of violence. The negative relationship illustrated in this chapter suggests that private extraction is likely to reduce the level of violence, while state-owned extraction is likely to increase the level of violence experienced.

Description of Independent Variables

My dataset can be shown in a manner of ways, but first, I will show some basic pie graphs to demonstrate the distribution of resource extraction ownership across my sample.

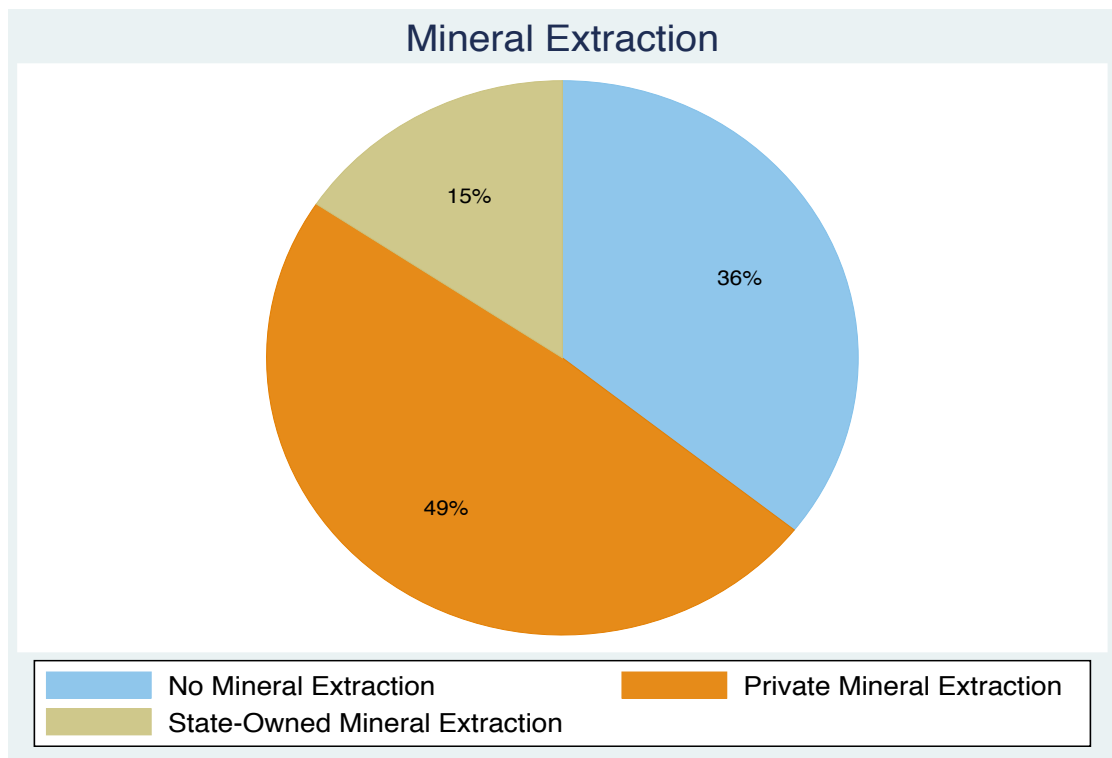


Figure 1 - Ownership of Mineral Extraction

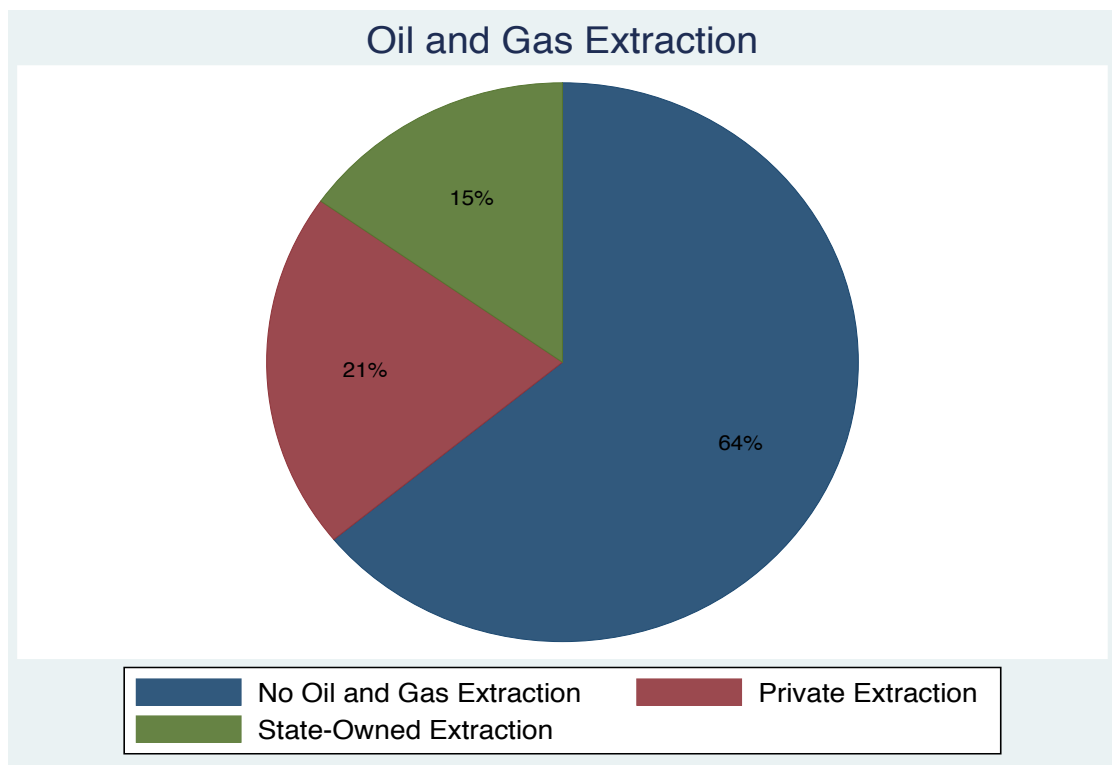


Figure 2 - Ownership of Oil and Gas Extraction

The First pie graph (Figure 1) shows the proportion of country-year observations for ownership of mineral extraction. From Figure 1 we can see that mineral extraction is dominated by private ownership with 49% of country-years exhibiting majority private ownership, compared to 15% state-owned mineral extraction and 36% with no mineral extraction in Latin America and Africa from 1989 to 2014. The graph in Figure 2 shows the proportion of country-year observations for oil and gas extraction. From Figure 2 we can see that the ownership of oil and gas is relatively evenly distributed, when extraction occurs, between state-owned (15%), and privately owned (21%). However, we also see that 64% of country-year observations do not experience any oil and gas extraction in Latin America and Africa from 1989-2014. From Figure one and Figure two, we can see that mineral extraction is dominated by private ownership, whereas oil and gas has a relatively even distribution of ownership between private (21%) and state-owned (15%), when extraction occurs.

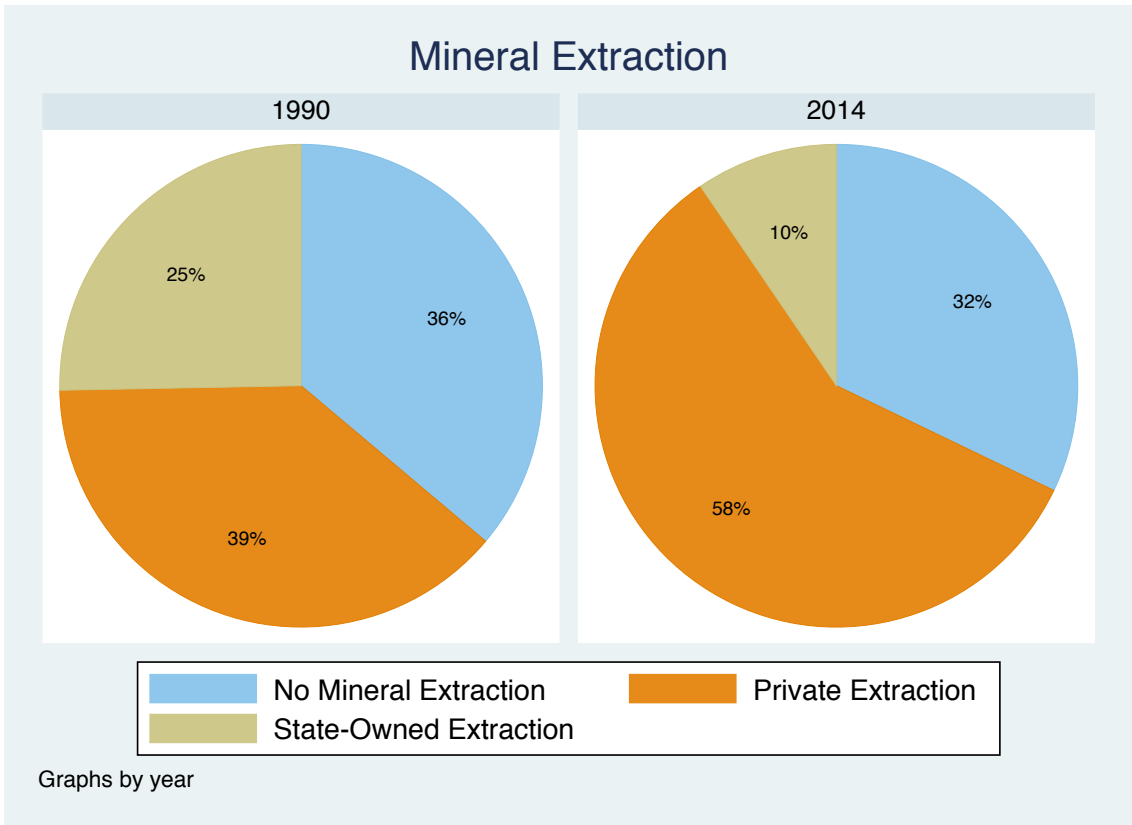


Figure 3 - Ownership of Mineral Extraction in 1990 and 2014

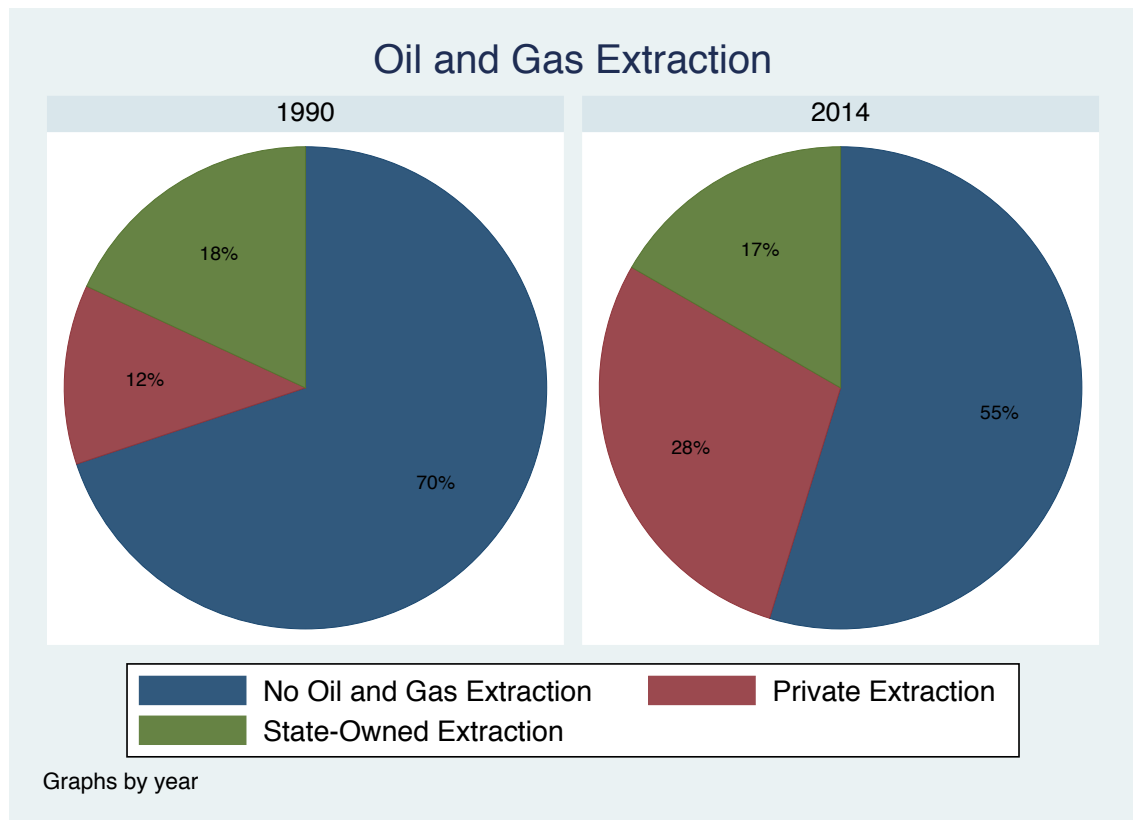


Figure 4 - Ownership of Oil and Gas Extraction in 1990 and 2014

Figures 3 and 4 show the distribution of ownership of resource extraction in 1990 compared with 2014. Figure 3 shows how mineral extraction has changed over time and we can see that the proportion of country-years with no mineral extraction decreased by four percentage points, state-owned extraction decreased from 25% to 10%, while privately owned mineral extraction increased from 39% to 58%. These changes suggest that some countries shifted from state-owned to private owned extraction, although some of the changes could be the result of new discoveries of mineral deposits by private firms. Figure 4 shows how oil and gas extraction has changed over time, with two pie graphs illustrating the distribution of oil and gas extraction ownership in 1990 compared to 2014. In the graphs we see that there has been a 1-percentage point decrease in state-owned oil and gas extraction, from 18% in 1990 to 17% in 2014. Alternatively, we can see there are larger changes in the graphs for privately owned extraction and no extraction. We see a change from 12% privately owned extraction in 1990 to 28% in 2014, accompanied by the decrease from 70% in 1990 to 55% in 2014 of no extraction; this suggests that there has been a trend towards the private extraction of natural resources over time. Now that we have looked at how ownership distribution changes over

time, let us look at how ownership differs across regions, from Latin America and Africa.

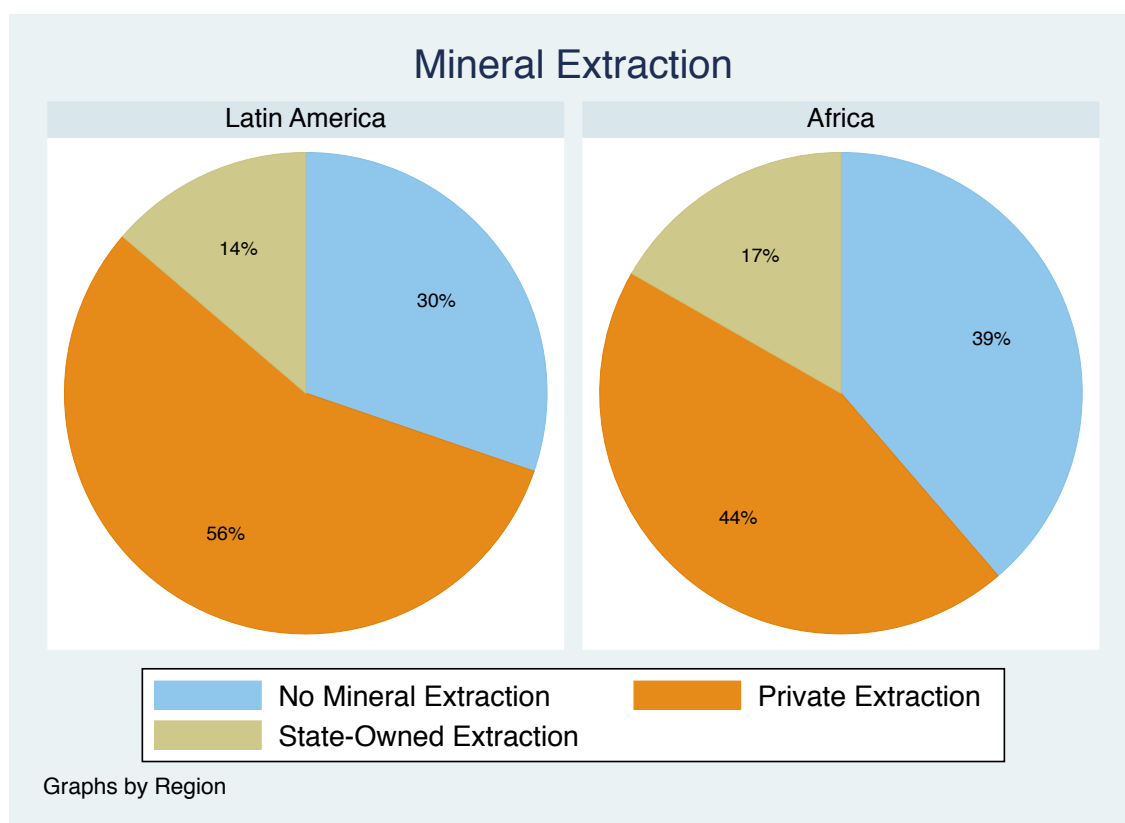


Figure 5 - Ownership of Mineral Extraction in Latin America and Africa, All Years

Figures 5 and 6 show the distribution of mineral ownership in Latin America and Africa, and the distribution of oil and gas ownership in Latin America and Africa, respectively. From these graphs we can compare the distribution of ownership across the regions, to see if there is a difference in the structure of ownership in Latin America compared with Africa. Firstly, Figure 5 shows that Africa and Latin America share a similar make up of their mineral industries in terms of ownership. In years where there is no mineral extraction, Latin America shows that 30% of country-year observations have no mineral extraction, and 39% of country-years in Africa have no mineral extraction. We can see that there is a 3% difference in state-owned mineral extraction, where in Latin America 14% of country-years have state-owned mineral extraction, compared with 17% of country-years in Africa. Additionally, there is an 8% difference in private ownership of mineral extraction, where 56% of country-years in Latin America have private mineral extraction, compared with 44% of country-years in Africa with mineral extraction. The similarity in the distribution of mineral extraction

ownership between the two regions suggests that the results for mineral extraction are unlikely to be driven by one region with heavily skewed data.

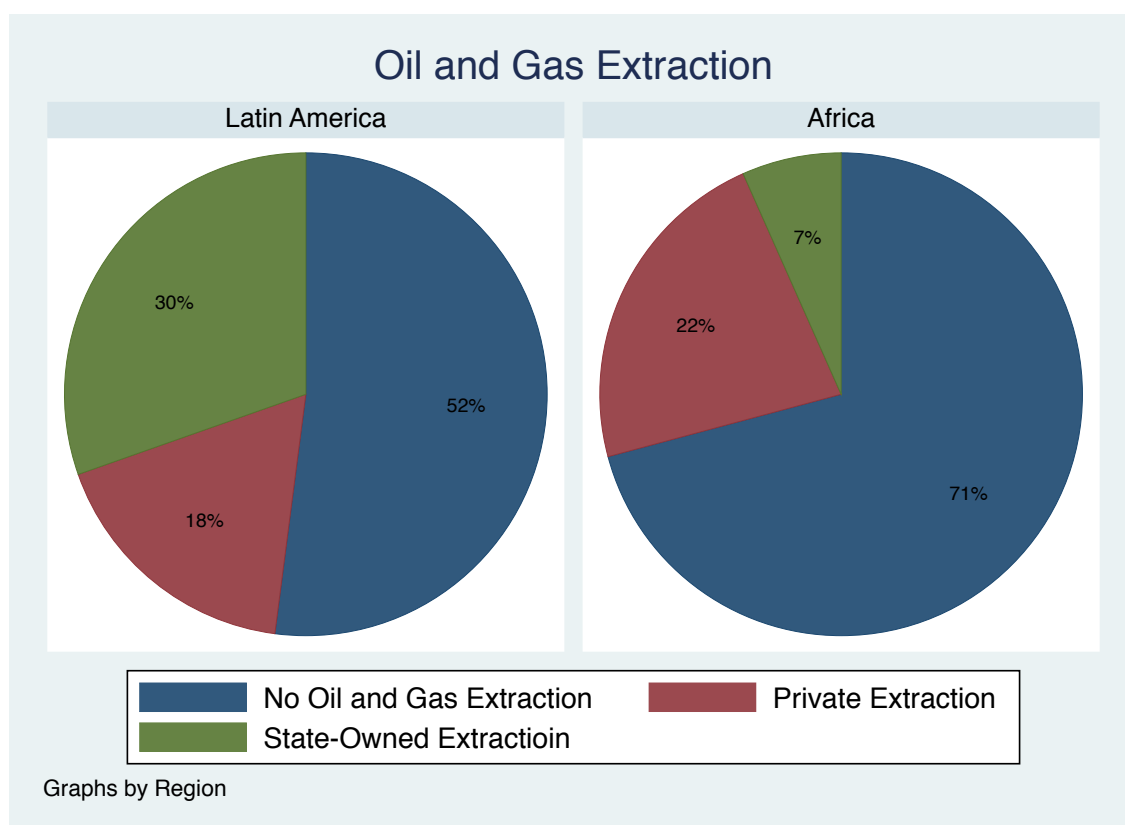


Figure 6 - Ownership of Oil and Gas Extraction in Latin America and Africa, All Years

Conversely, Figure 6 shows the distribution of oil and gas ownership in Latin America and Africa. Figure 6 shows that there are larger differences in the distribution of oil and gas ownership between regions and compared to mineral ownership. The largest difference between Latin America and Africa in Figure 6 is the proportion of country-year observations with state-owned oil and gas extraction. In particular, we see 30% of country-year observations in Latin America have state-owned extraction, compared with 7% of country-year observations in Africa. Secondly, looking at the distribution of private oil and gas extraction, we see 18% of country-years in Latin America have private extraction, compared with 22% of country-years in Africa with private oil and gas extraction. And lastly, we see that Latin America has 52% of country-years with no oil and gas extraction compared with 71% of country-years in Africa with no oil and gas extraction.

Overall, we see that the ownership of mineral extraction is relatively even across the two regions in my sample, with more private mineral extraction occurring in

Latin America. Additionally, for oil and gas extraction, a larger proportion of country-years in Latin America have state-owned oil and gas extraction compared to Africa. In both Figures, we see that more extraction occurs in Latin America, however these results could be skewed by the number of observations in each region, with 53 African countries, compared with 30 Latin American countries in my sample.

Description of Dependent Variable

In this section I will describe the dependent variable by illustrating what the data on the level of violence across my sample looks. First, I will show the distribution of fatalities across Africa and Latin America per year. Second, I describe the proportion of observations of resource ownership across the levels of violence. Figure 7 shows the distribution of fatalities across the years analysed in this study. The graph in Figure 7 illustrates that the year with the most fatalities was 1994, particularly in Africa; these results are likely to be driven by the Rwandan genocide. Additionally, the graph in Figure 7 shows a trend of higher number of fatalities from 1989 through to 2001, followed by a trend of low numbers off fatalities through to 2014. This trend suggests that conflict is reducing over time. Next I will describe the distribution of the type of ownership of resource extraction across the levels of violence, within the sample.

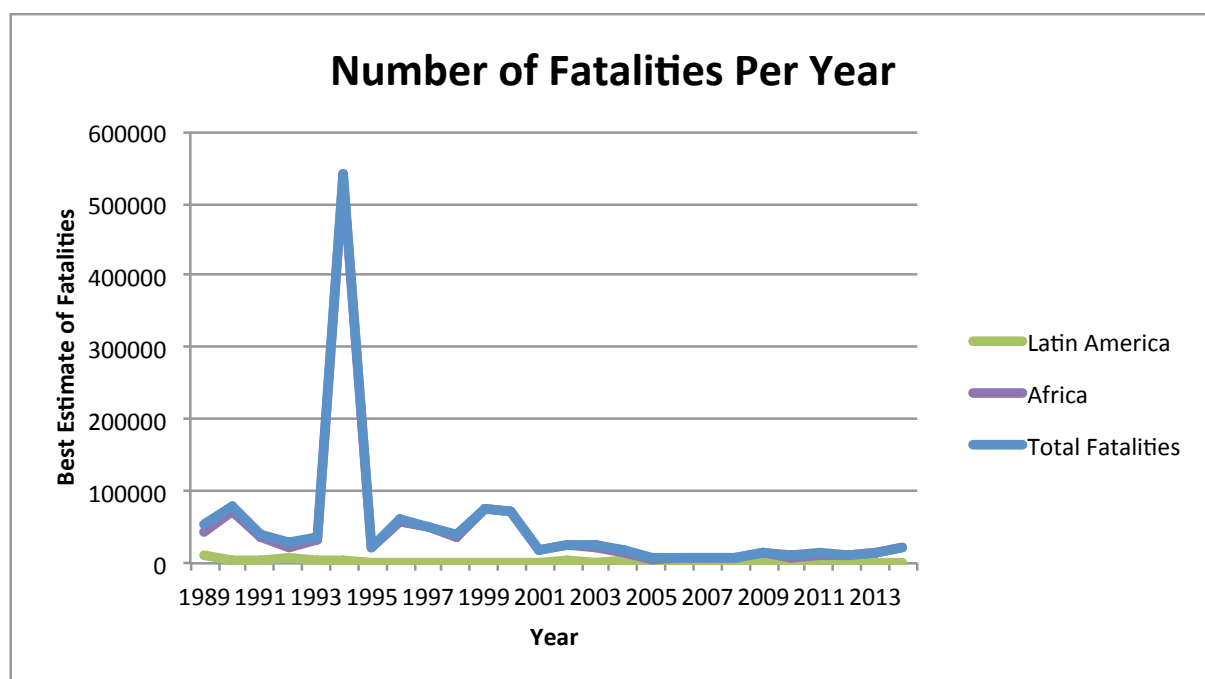


Figure 7 - Line graph of fatalities per year in Africa and Latin America

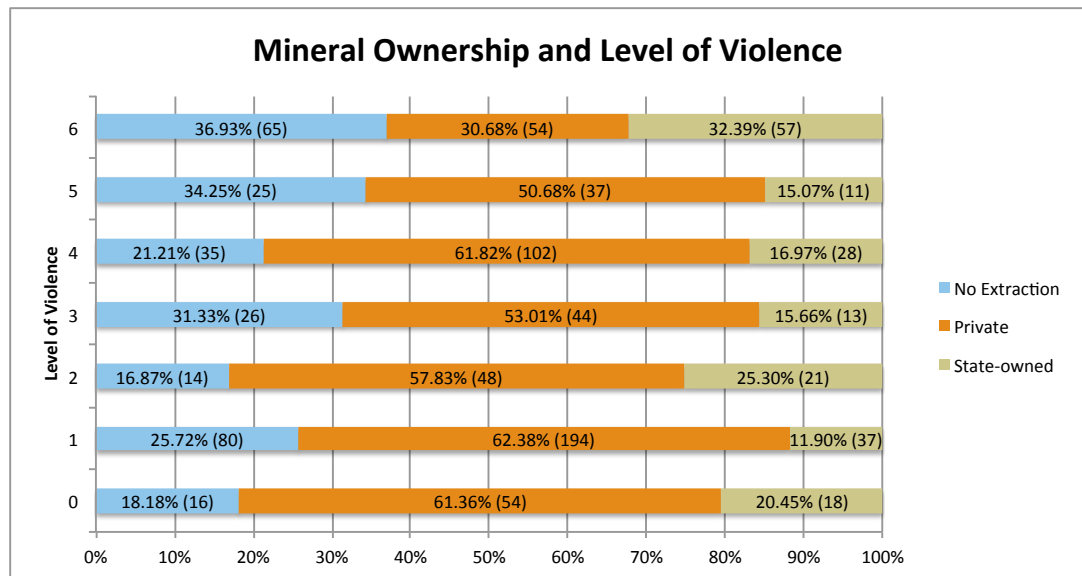


Figure 8 - Stacked Bar Graph of Ownership of Mineral Extraction and Level of Violence

Figures 8 and 9 are stacked bar graphs, which show proportions of the levels of violence, by different types of extraction ownership. In the stacked bar graphs, the size of the bar is the proportion of observations, shown by the percentage written within the bar, followed by the number of observations in brackets. Firstly, Figure 8 shows the results for mineral extraction, and from this graph we can see that when a country-year experiences level 1 violence (1 on the y-axis) the majority of cases, 62.38%, have private mineral ownership (194 observations). Alternatively, for level 6 violence, the larger proportion is taken up by no mineral extraction, with 36.93% (65) of observations, followed by state-owned mineral extraction, with 32.39% (57) observations, closely followed by private ownership with 30.68% (54) observations. Overall from Figure 8 we can see that there are more observations with private ownership and level 1 and level 2 violence. This suggests support for my hypotheses; that private ownership is likely to experience lower-level violence, and state-owned extraction is likely to experience higher-levels of violence. The graph in Figure 8 also suggests that country-years are safest when private mineral extraction is present, as we can see with over 60% of observations that experience no recorded violence and level 1 violence, are observations with private mineral extraction.

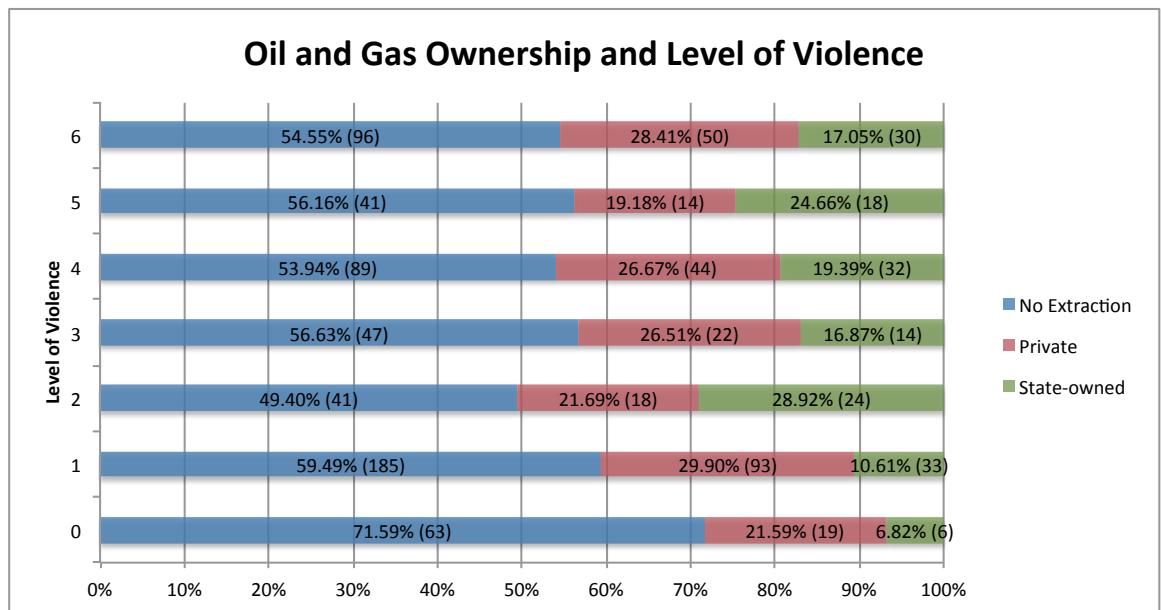


Figure 9 - Stacked Bar Graph of Ownership of Oil and Gas Extraction and Level of Violence

In contrast, Figure 9 shows the stacked bar graph for oil and gas ownership and violence. In this graph we see an increase in observations that do not have any oil and gas extraction. In particular, the distribution of observations for no violence recorded suggests that countries are safest with no oil and gas extraction. In Figure 9, looking at level 1 and level 6, we see a large proportion of cases having private ownership of oil and gas extraction, with 29.90% of observations at level 1 and 28.41% of observations at level 6. These graphs illustrate that there are cases where violence occurs in countries with both state-owned and privately owned resource extraction. Initially, we see that private extraction, both oil and gas and mineral, have a large proportion of observations with low-levels of violence, suggesting partial support for my hypotheses. However, the results for oil and gas ownership shows that no extraction is safer than having oil and gas extraction. In the following sections I will show how these variables interact further and what the relationship between resource ownership and the severity of violence a country may experience looks like.

Bivariate Hypothesis Testing

In this section I will conduct tabular analysis to show the relationship between my independent and dependent variables. The results from this analysis will show the statistical significance of the relationship is between the level of violence and the type of extraction ownership. Additionally, these tests will give us an idea of how likely that any relationship that we observe could have been

produced by chance. The results of the bivariate hypothesis tests will enable me to accept or reject the null hypothesis; that there is no relationship between the ownership of resource extraction and the level of violence a state may experience, given this data and the choice of analysis technique. I will start the bivariate testing by showing the tabular analysis for mineral extraction, starting with describing the table comparing observations of extraction with no extraction across the levels of violence. Following the table that shows the relationship between resource extraction in general with the levels of violence, I will structure the analysis by the type of resources being extracted, starting with the analysis of the ownership of mineral extraction and violence, followed by an analysis of the ownership of oil and gas extraction and the levels of violence. Within each section I will show the tabular analysis for no extraction compared to private, followed by the analysis for no extraction compared to state-owned extraction. And finally, I will show the analysis for private ownership compared to state-owned extraction for minerals and then for oil and gas.

Table 5-1 Chi2 Table of Resource Extraction and Level of Violence

Level of Violence	Resource Extraction		
	No Extraction	Extraction	Total
0	11	77	88
	12.50	87.50	100
	6.40	9.54	8.99
1	54	257	311
	17.36	82.64	100
	31.40	31.85	31.77
2	11	72	83
	13.25	86.75	100
	6.40	8.92	8.48
3	13	70	83
	15.66	84.34	100
	7.56	8.67	8.48
4	22	143	165
	13.33	86.67	100
	12.79	17.72	16.85
5	16	57	73
	21.92	78.08	100
	9.30	7.06	7.46
6	45	131	176
	25.57	74.43	100
	26.16	16.23	17.98
Total	172	807	979
	17.57	82.43	100
	100	100	100
Pearson chi2(6) = 13.6198 Pr = 0.034			

Table 1 shows the tabular analysis of resource extraction in general across the levels of violence. This table shows the number of observations for every possible outcome of severity of violence, the proportion of country-year observations for each level of violence and whether there is resource extraction or not. First, we see that there are a total of 979 observations within the dataset for the level of violence, of these observations, 172 observations, or 17.57%, occur in country years with no resource extraction, and 807 observations, or 82.43%, occur in country-years with some form of resource extraction. Second, let us look at the distribution of observations where there is no resource extraction and the level of violence experienced. In the column for no extraction in Table 1, we see that 6.40% of no extraction observations do not experience any violence, 31.40% of observations experience level 1 violence, and 26.16% experience level 6 violence. In comparison, looking at the column

for extraction, we see that 9.54% of observations with some form of resource extraction experience no violence, 31.85% of observations experience level 1 violence and 16.23% of observations experience level 6 violence. These results show that when a country-year has no resource extraction, the most common outcome of violence experienced is level 1 violence (31.40%), closely followed by level 6 violence (26.16%). Similarly, when there is some form of resource extraction, the most common outcome for the level of violence is level 1 (31.85%) followed by level 6 violence (16.23%). This suggests that there is not a strong relationship between extraction in general and the severity of violence.

In order to analyse each level of violence and whether it is more likely to occur under resource extraction or under no extraction, we should look across rows at the proportion of observations for each level of violence. First, looking at the row for no violence, we see that 87.50% of observations occur when there is also some form of resource extraction. When level 1 violence occurs, we see that 82.64% of observations also have some form of resource extraction. Table 1 shows a trend where the proportion of observations for resource extraction gradually decreases as the level of violence increases. In comparison, the trend for the proportion of observations for no resource extraction gradually increases as the level of violence increases. Throughout the rows in Table 1, the majority of observations occur when there is some form of resource extraction; this suggests that, no resource extraction is less likely to experience any level of violence compared to when there is resource extraction. Additionally, the p-value for this analysis is 0.034, which suggests that these results are significant, and unlikely to be the product of random chance. Overall, Table 1 shows that the safest option, between no resource extraction and extraction of some form, is no extraction.

Mineral Extraction

In this section I discuss the tabular analysis of mineral ownership and the severity of violence. I will compare private ownership to no extraction, then state-owned with no extraction, and finally comparing private mineral extraction with state-owned mineral extraction. Table 2 shows the tabular analysis of private mineral extraction and the level of violence, we see that there are a total of 705 observations within this analysis, showing 172 (24.40%) observations of no extraction, and 533 (75.60%) observations of private mineral extraction across

the levels of violence. First, looking at the column for no resource extraction, we see the same proportions shown in table 1, and looking at the column for private mineral extraction, we see that 10.13% of observations experience no violence, 36.40% experience level 1 violence, 19.14% experience level 4 violence, and 10.13% experience level 6 violence. The results from these columns show that when there is private extraction, the most common violence outcome is level 1, followed by level 4, and level 6 violence shares the same proportion of observations as no violence.

Table 5-2 Chi2 Table of Private Mineral Extraction and Level of Violence

Level of Violence	Private Mineral Extraction		
	No Extraction	Private Extraction	Total
0	11	54	65
	16.92	83.08	100
	6.40	10.13	9.22
1	54	194	248
	21.77	78.23	100
	31.40	36.40	35.18
2	11	48	59
	18.64	81.36	100
	6.40	9.01	8.37
3	13	44	57
	22.81	77.19	100
	7.56	8.26	8.09
4	22	102	124
	17.74	82.26	100
	12.79	19.14	17.59
5	16	37	53
	30.19	69.81	100
	9.30	6.94	7.52
6	45	54	99
	45.45	54.55	100
	26.16	10.13	14.04
Total	172	533	705
	24.40	75.60	100
	100	100	100
Pearson chi2(6) = 31.7713 Pr = 0.000			

Second, I will analyse the levels of violence, and whether no extraction or private mineral extraction experiences more high or low-level violence. When looking at the row for no violence, 16.92% of observations have no resource extraction, and 83.08% of observations have private mineral extraction. Figure 10 illustrates the proportion of observations for no resource extraction and

private mineral extraction, at each level of violence. In Table 2, we see that the majority of observations across almost all levels of violence occur in country-years with private mineral extraction, which shows that private mineral extraction is more common than no resource extraction. However, as the level of violence increases to level 6, we see that no resource extraction becomes more common, as shown in Figure 10. Therefore, these results suggest that lower levels of violence are more likely to occur in country-years with private mineral extraction, and that higher levels of violence are experienced almost equally in country-years with no resource extraction, as in country-years with private mineral extraction. Overall, this suggests that private mineral extraction decreases the relative risk of high-levels of violence. Additionally, these results are statistically significant, as shown by the p-value of 0.000 in Table 2; this suggests that the outcomes are not a result of random chance.

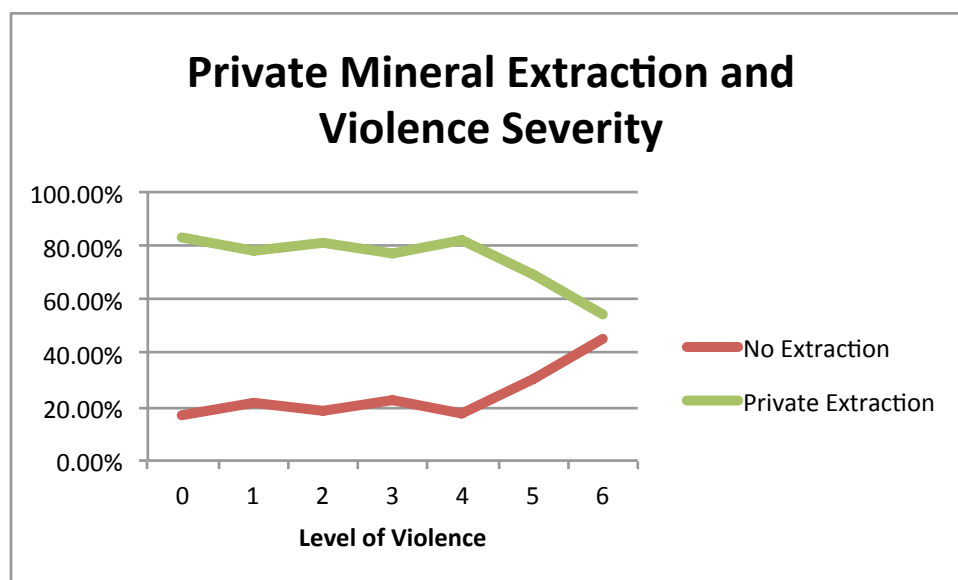


Figure 10 - Line graph of Private Mineral Extraction and Level of Violence

Table 3 shows the tabular analysis of no resource extraction and state-owned mineral extraction across the levels of violence. In this table, there are a total of 357 observations, where 48.18% are observations with no resource extraction, and 51.82% are observations with state-owned resource extraction. Already in this analysis we have a relatively even distribution of observations with no resource extraction and with state-owned mineral extraction. First I will outline the distribution of state-owned observations across the levels of violence. Looking at the column for state-owned mineral extraction, we see that 9.73% of the observations experience no violence, 20.00% experience level 1 violence,

and 30.81% experience level 6 violence. From the column results, we see that when there is state-owned mineral extraction, level 6 violence is the most likely outcome, followed by level 1 violence. However, the p-value from this table does not show statistical significance.

Table 5-3 Chi2 Table State-Owned Mineral Extraction and Level of violence

Level of Violence	State-Owned Mineral Extraction		
	No Extraction	State-Owned	Total
0	11	18	29
	37.93	62.07	100
	6.40	9.73	8.12
1	54	37	91
	59.34	40.66	100
	31.40	20.00	25.49
2	11	21	32
	34.38	65.62	100
	6.40	11.35	8.96
3	13	13	26
	50.00	50.00	100
	7.56	7.03	7.28
4	22	28	50
	44.00	56.00	100
	12.79	15.14	14.01
5	16	11	27
	59.26	40.74	100
	9.30	5.95	7.56
6	45	57	102
	44.12	55.88	100
	26.16	30.81	28.57
Total	172	185	357
	48.18	51.82	100
	100	100.000	100
Pearson chi2(6) = 10.5888 Pr = 0.102			

Next, I will analyse whether state-owned mineral extraction or no extraction is more likely to experience each level of violence, by comparing the proportions across the rows of Table 3, also illustrated in Figure 11. First, when looking at observations that do not experience any violence, we see that 37.93% do not have any resource extraction, and 62.07% have state-owned mineral extraction. As shown in Figure 11, the trend for state-owned mineral extraction and no resource, extraction across the levels of violence, is not as straight forward as the trend between private mineral extraction and no resource extraction shown in Figure 10. We see that for no violence, level 2, level 4 and

level 6 violence, the majority of observations have state-owned mineral extraction. In comparison, no resource extraction has the majority of observations for level 1 and level 5 violence, and for level 3 violence, it is a 50:50 split for no resource extraction and state-owned mineral extraction. Figure 11 and Table 3 illustrate that countries with either no resource extraction or state-owned mineral extraction experience all levels of violence relatively equally. The analysis here suggests that state-owned mineral extraction is about as 'dangerous' as no resource extraction, therefore it does not increase or decrease the overall risk. This analysis shows the likely levels of violence when there is no extraction, compared to state-owned mineral extraction, the next analysis will show a comparison of mineral extraction ownership, and will show if private or state-owned experiences high-level or low-level violence.

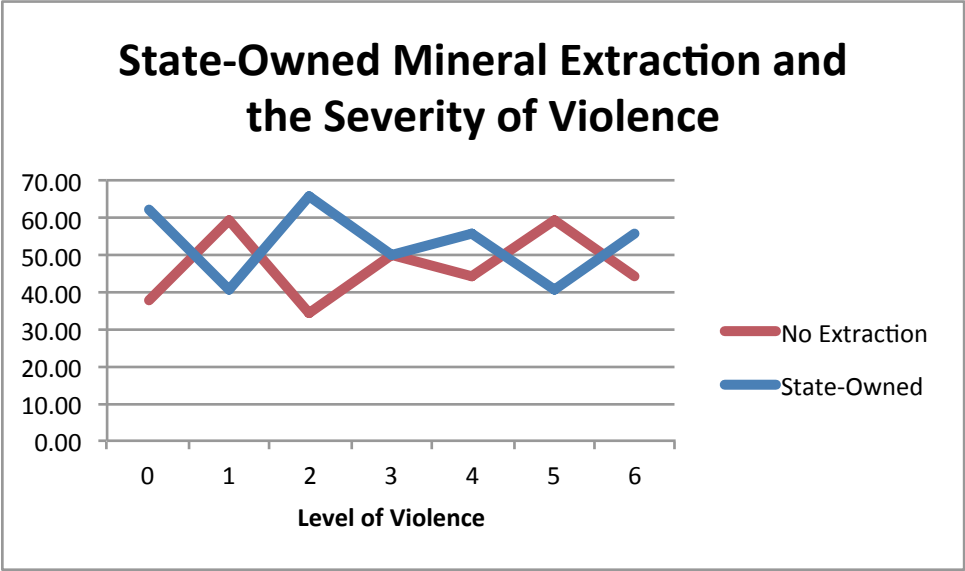


Figure 11 - Line graph of state-owned mineral extraction and the level of violence

Table 5-4 Chi2 Table Mineral Ownership and Level of Violence

Level of Violence	Mineral Extraction		
	State-Owned	Private	Total
0	18	54	72
	25.00	75.00	100
	9.73	10.13	10.03
1	37	194	231
	16.02	83.98	100
	20.00	36.40	32.17
2	21	48	69
	30.43	69.57	100
	11.35	9.01	9.61
3	13	44	57
	22.81	77.19	100
	7.03	8.26	7.94
4	28	102	130
	21.54	78.46	100
	15.14	19.14	18.11
5	11	37	48
	22.92	77.08	100
	5.95	6.94	6.69
6	57	54	111
	51.35	48.65	100
	30.81	10.13	15.46
Total	185	533	718
	25.77	74.23	100
	100	100	100
Pearson chi2(6) = 51.9543 Pr = 0.000			

The tabular analysis in Table 4 shows how the observations of state-owned and privately owned mineral extraction are distributed across the levels of violence. The p-value for this analysis shows that the results are statistically significant, and are unlikely to be the result of random chance. Firstly, Table 4 shows that 25.77% of the observations are country-years that have state-owned mineral extraction, and 74.23% are country-years with private mineral extraction, this shows it is more common for there to be private mineral extraction than state-owned mineral extraction. Now to discuss the levels of violence and the ownership of mineral extraction illustrated in Figure 12, we see that private mineral extraction has the larger proportion of observations at every level of violence with the exception of level 6. The proportion of observations that experience level 6 violence is almost evenly distributed, with 51.35% having state-owned mineral and 48.65% having private mineral extraction. Figure 12

shows the trend for the proportion of observations for private mineral extraction is steady, with a sharp decrease when experiencing level 6 violence, this suggests that the risk of level 6 violence is less when mineral extraction is privately owned, and more risk when mineral extraction is state-owned. Therefore, this analysis shows that observations with private mineral extraction are at a higher risk of experiencing level 1 violence. However, the change in proportions of observations at level 6 violence, shows that observations with state-owned mineral extraction are at a higher risk of experiencing level 6 violence, and private ownership is at a lower risk of experiencing level 6 violence.

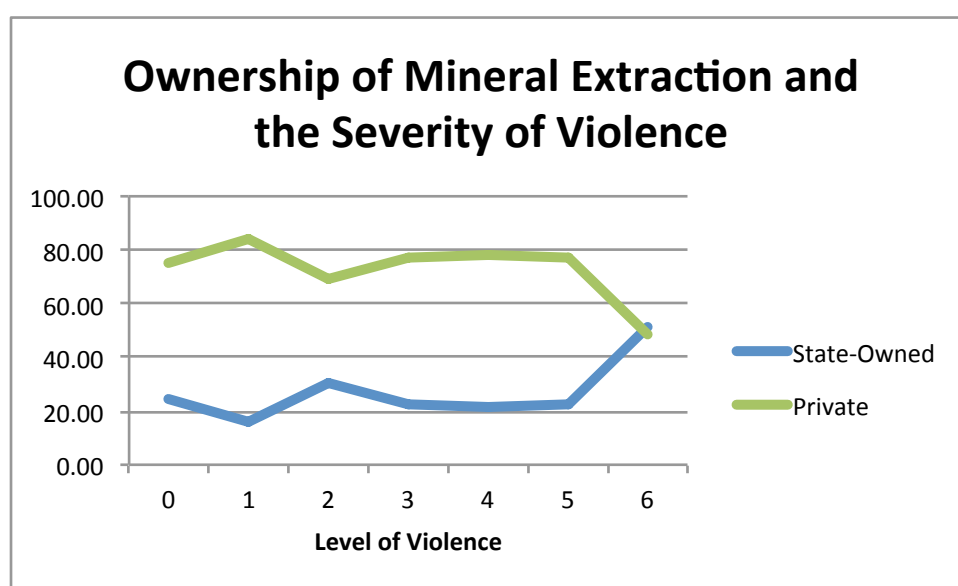


Figure 12 - Line graph of Mineral Ownership and Level of Violence

Lastly in this section, I will use Figure 13 to show all the possible outcomes for the levels of violence and mineral extraction within my sample - no extraction, private mineral extraction and state-owned mineral extraction. The results show that for each level of violence measured in this analysis, that the higher proportions of observations have private mineral extraction, with the exception of level 6 violence. In Figure 13 we see a trend where the proportion of observations is steady across all levels of violence, until we reach level 5 and level 6 violence. At the lower levels of violence, we see that observations with private mineral extraction are at the highest risk of experiencing level 1 violence, compared to state-owned mineral extraction and no extraction. Additionally, looking at level 2 violence, again, we see that private mineral extraction is at the highest risk, however, state-owned mineral extraction is at

the lowest risk of experiencing level 2 violence. The change in observations at 6 shows in particular shows that observations with state-owned mineral extraction is at a higher risk of experiencing level 6 violence, followed by private mineral extraction, with no extraction being at the lowest risk of experiencing level 6 violence. Therefore, the graph in Figure 13 suggests that the most peaceful option (negative peace) of mineral extraction – the one least likely to experience any violent conflict – is private mineral extraction. The trends shown in Figure 13 suggest that private mineral extraction has the highest risk of experiencing level 1 violence and that state-owned mineral extraction is at the highest risk of experiencing level 6 violence. Therefore, the results suggest support for my hypotheses; that private extraction is more likely to experience low-level violence. Additionally, Figure 13 suggests that there is not a lot of difference between state-owned mineral extraction and no violence and the risk of violence, as shown by the lines the represent no extraction and state-owned being so close together in the graph.

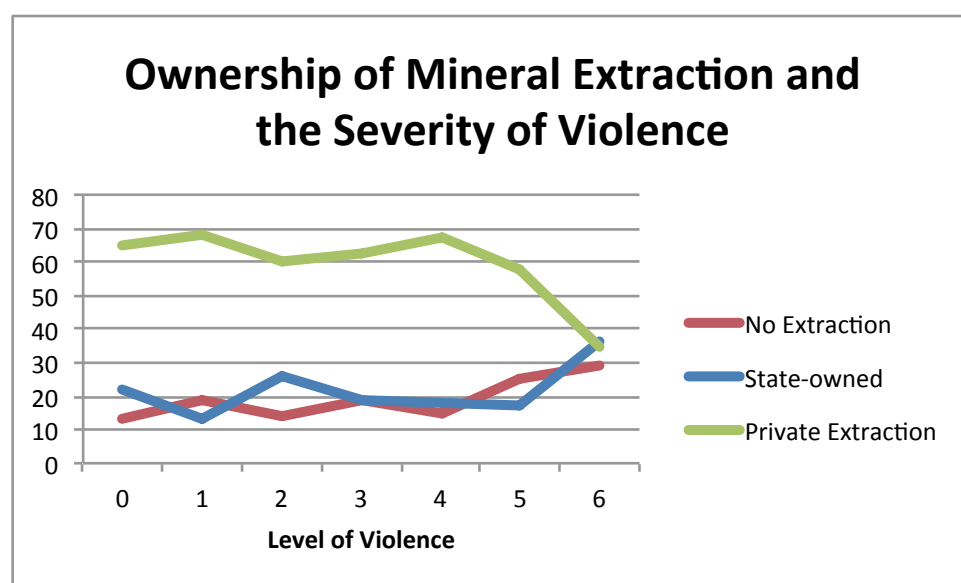


Figure 13 - Line graph of Mineral Ownership with No Extraction across Levels of Violence

Oil and Gas Extraction

In this section I will discuss the tabular analysis of oil and gas ownership, in order to compare the results with the analysis of mineral ownership, and further test my hypotheses on ownership of resource extraction and the severity of violence. First I will compare no extraction with private oil and gas extraction, followed by a comparison between no extraction and state-owned extraction, and I will finish this section by comparing state-owned with private oil and gas

extraction. In each table I will show how the distribution of each type of oil and gas ownership is spread across the levels of violence.

Table 5 shows the tabular analysis of no extraction, private oil and gas extraction and the levels of violence. Each column in the table shows the observations for no oil and gas extraction, and private oil and gas extraction. At the bottom of the table, in the 'total' row, we see that in this sample there are 172 (39.81%) observations with no extraction and 260 (60.19%) observations with private oil and gas extraction. First, looking down the columns for no extraction, we see that 6.40% of observations experience no violence, 31.40% experience level 1 violence, and 26.16% of observations experience level 6 violence. Looking down the column for private oil and gas extraction, we see a similar pattern, with 7.31% of observations experiencing no violence, 35.77% experiencing level 1 violence, and 19.23% experiencing level 6 violence. The pattern of level 1 and level 6 violence sharing the highest, and second highest proportion of observations for each type of extraction (none and private oil and gas) shows that the most common levels of violence are low-level (level 1) and high-level (level 6).

Table 5-5 Chi2 Table of Private Oil and Gas Extraction and Level of Violence

Level of Violence	Private Oil and Gas Extraction		
	No Extraction	Private Extraction	Total
0	11	19	30
	36.67	63.33	100
	6.40	7.31	6.94
1	54	93	147
	36.73	63.27	100
	31.40	35.77	34.03
2	11	18	29
	37.93	62.07	100
	6.40	6.92	6.71
3	13	22	35
	37.14	62.86	100
	7.56	8.46	8.1
4	22	44	66
	33.33	66.67	100
	12.79	16.92	15.28
5	16	14	30
	53.33	46.67	100
	9.30	5.38	6.94
6	45	50	95
	47.37	52.63	100
	26.16	19.23	21.99
Total	172	260	432
	39.81	60.19	100
	100	100	100
Pearson chi2(6) = 6.5603 Pr = 0.363			

Next, I will compare the proportion of observations of no extraction and private oil and gas extraction across each level of violence. Shown in Table 5, and illustrated in Figure 14, we see that there is a pattern across all the levels, with the exception of levels 5 and 6. When country-year experience no violence, level 1, level 2, level 3, and level 4 violence, no extraction shares around 30% of the observations, and private oil and gas extraction shares around 60% of the observations. At level 5 violence, we see that 53.33% of observations have no extraction, and 46.67% of observations have private oil and gas extraction. At level 6 violence, we see that 47.37% of observations have no extraction, and 52.63% of observations have private oil and gas extraction. The trends observed in Figure 14 suggest that private oil extraction is at the highest risk of low-level violence, with a decrease in the risk of level 5 and level 6 violence. Figure 14 also suggests that no extraction has a higher risk, than private oil extraction of

experiencing level 5 violence. The results of this analysis show that there are more country-years that have private oil and gas extraction, and that oil and gas extraction in general increases the risk of conflict onset.

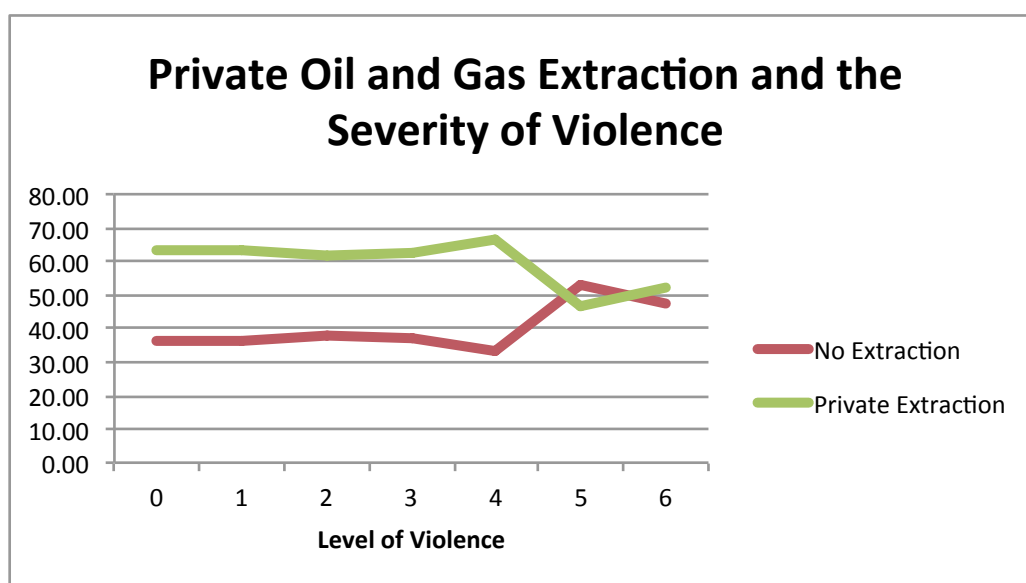


Figure 14 - Line graph Private Oil and Gas Extraction and Level of Violence

The second analysis in this section looks at state-owned oil and gas extraction in comparison to no extraction, and the level of violence. In Table 6 we can see that the column for no extraction shows 52.28% of the observations within the sample, and the column for state-owned oil extraction has 47.72% of the observations. Looking down the column for state-owned oil and gas extraction, we see that 3.82% of the observations experience no violence, 21.02% experience level 1 violence, 15.29% experience level 2 violence, 20.38% experience level 4 violence and 19.11% experience level 6 violence. The results from the state-owned oil and gas extraction column show that the most common results are level 1, 4 and 6. Additionally, at the bottom of Table 6 we see that the p-value shows the results in this table are statistically significant, and not a result of random chance.

Table 5-6 Chi2 Table State-Owned Oil and Gas Extraction and Level of Violence

Level of Violence	State-Owned Oil and Gas Extraction		
	No Extraction	State-Owned	Total
0	11	6	17
	64.71	35.29	100
	6.40	3.82	5.17
1	54	33	87
	62.07	37.93	100
	31.40	21.02	26.44
2	11	24	35
	31.43	68.57	100
	6.40	15.29	10.64
3	13	14	27
	48.15	51.85	100
	7.56	8.92	8.21
4	22	32	54
	40.74	59.26	100
	12.79	20.38	16.41
5	16	18	34
	47.06	52.94	100
	9.30	11.46	10.33
6	45	30	75
	60.00	40.00	100
	26.16	19.11	22.8
Total	172	157	329
	52.28	47.72	100
	100	100	100
Pearson chi2(6) = 15.7235 Pr = 0.015			

In order to discuss whether state-owned oil and gas extraction has a higher risk of experiencing low or high levels of violence, we need to compare it to cases with no resource extraction. Figure 15 illustrates the results from Table 6, showing the proportions of observations for no extraction and state-owned oil and gas extraction, across each level of violence. From Figure 15 we can see that the both no extraction and state-owned oil and gas extraction experience different levels of violence. In particular, we see that more observations with state-owned extraction experience levels 2, 3 and 4 violence, while observations with no extraction experience no violence, level 1 and level 6 violence more than state-owned. The results from this analysis show that no extraction is more likely to experience no violence more than state-owned oil and gas extraction. Therefore, from Figure 15, we see that state-owned oil and gas extraction is at a lower risk, than no extraction, of experiencing level 1 violence. The trend from

Figure 15 shows that state-owned oil and gas extraction has a higher risk of experiencing level 2, and level 4 violence, and has a lower risk, than no extraction, of experiencing level 6 violence.

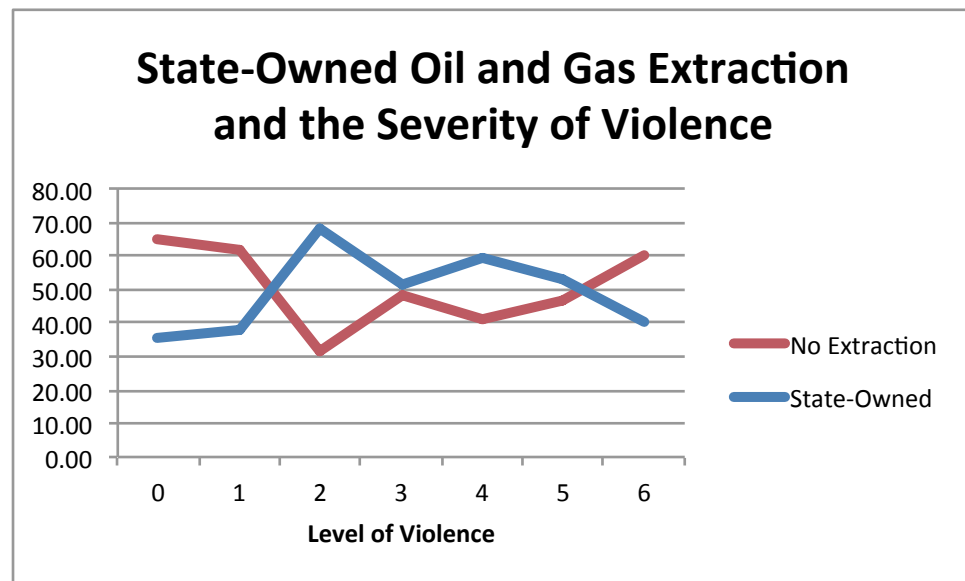


Figure 15 - Line Graph of State-Owned Oil and Gas Extraction and Level of Violence

So far we have discussed privately owned and state-owned oil and gas extraction in relation to no resource extraction; the third tabular analysis of oil and gas extraction will compare privately owned oil and gas extraction with state-owned oil and gas extraction across the levels of violence. The analysis from Table 7 will show us what levels of violence state-owned oil and gas, and private oil and gas extraction are more likely to experience. The p-value, shown at the bottom of Table 7, shows that the results produced in this table are statistically significant, and not likely to be the product of random chance. Table 7 shows that 37.65% of observations have state-owned oil and gas extraction, and 62.35% have private oil and gas extraction. We already know how each type of ownership is distributed over the levels of violence (looking down the columns), now we will look at the distribution of each level of violence, across either state-owned oil and gas extraction, or private oil and gas extraction. Table 7, and Figure 16, show that when there is no violence, private extraction occurs in 76.00% of observations, and 24.00% in observations with state-owned oil and gas extraction. Additionally, when level 6 violence is experienced, 62.50% of observations have private oil and gas extraction, and 37.50% of observations have state-owned oil and gas extraction. Therefore, we

see that no violence is more common when there is private oil and gas extraction, but also level 6 violence is more common with private oil and gas.

Table 5-7 Chi2 Table Ownership of Oil and Gas Extraction and Level of Violence

Level of Violence	Oil and Gas Extraction		
	State-Owned	Private Extraction	Total
0	6	19	25
	24.00	76.00	100
	3.82	7.31	6.00
1	33	93	126
	26.19	73.81	100
	21.02	35.77	30.22
2	24	18	42
	57.14	42.86	100
	15.29	6.92	10.07
3	14	22	36
	38.89	61.11	100
	8.92	8.46	8.63
4	32	44	76
	42.11	57.89	100
	20.38	16.92	18.23
5	18	14	32
	56.25	43.75	100
	11.46	5.38	7.67
6	30	50	80
	37.50	62.50	100
	19.11	19.23	19.18
Total	157	260	417
	37.65	62.35	100
	100	100	100
Pearson chi2(6) = 21.2141 Pr = 0.002			

Figure 16 shows that the risk of violence changes across all levels. First, we see that private oil and gas extraction has a high risk of experiencing low-level violence, and state-owned oil and gas extraction has a low risk of experiencing low-level violence. Second, we see that the risk of violence for state-owned oil and gas extraction increases for level 2 violence, and again for level 5 violence. However, this graph shows that for level 6 violence, private oil and gas extraction has a higher risk, compared to state-owned oil and gas extraction.

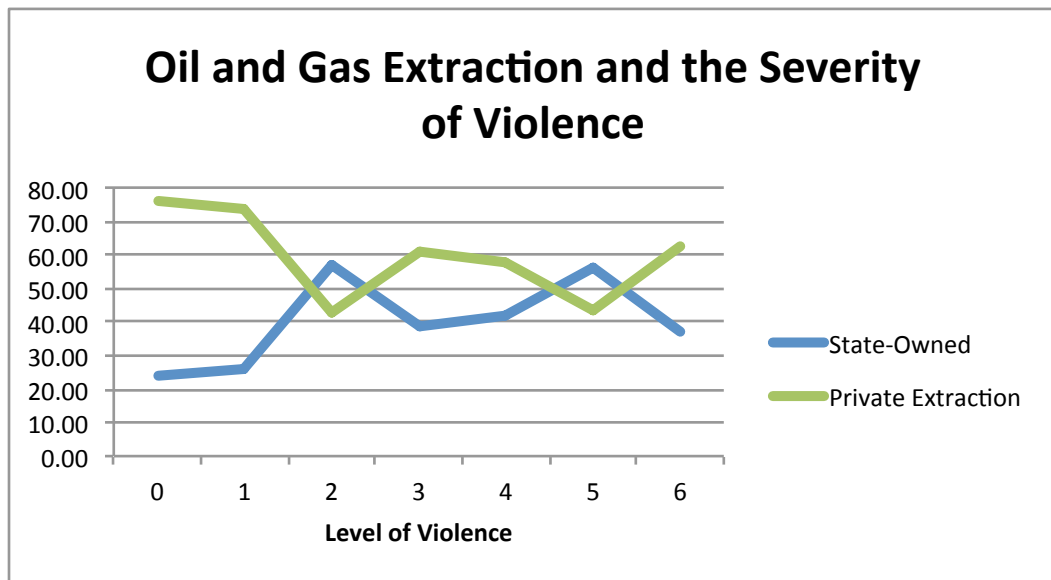


Figure 16 - Line Graph Ownership of Oil and Gas Extraction and Level of Violence

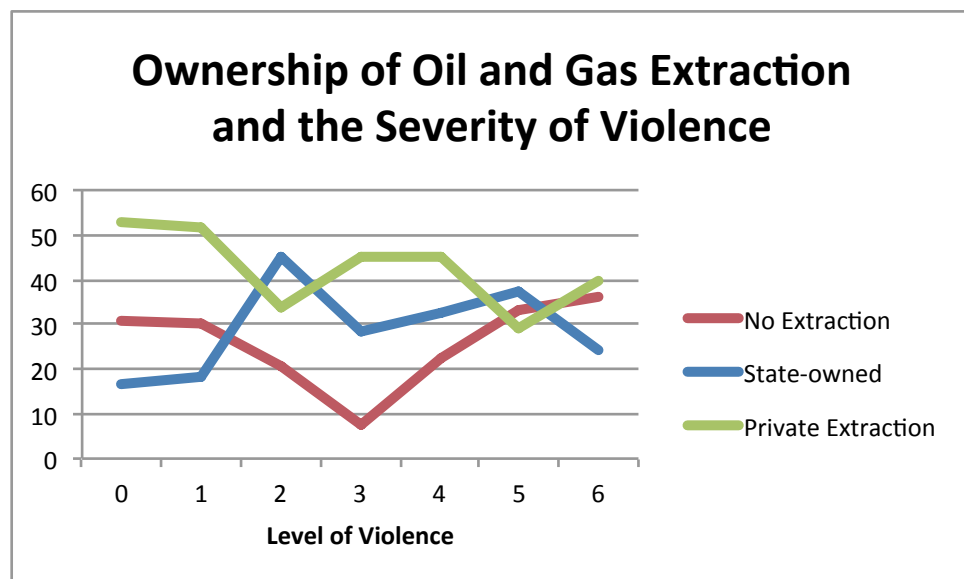


Figure 17 - Line graph of Oil and Gas Ownership with No Extraction across Levels of Violence

Lastly, Figure 17 illustrates the proportion of observations for no extraction, state-owned oil and gas, and private oil and gas extraction across the level of violence. This graph shows that when there is no violence, private extraction is most common, followed by no extraction, and state-owned extraction being the least common result, level 1 violence reflects much the same result as no violence. When level 6 violence is experienced, the most common result is still private extraction, followed by no extraction, and then stat-owned extraction, but the differences in these proportions is very small. Therefore, in Figure, we see that when oil and gas extraction is present, observations with private extraction

are at a higher risk of experiencing low-level violence, compared to state-owned oil and gas extraction, and compared to no resource extraction. These results show support for my hypothesis; the private ownership of resource extraction is more likely to experience low-level violence. Furthermore, for private oil and gas extraction, we see that the risk of violence decreases from no violence towards level 6, as shown by the slope of the line. The trend for state-owned oil and gas extraction shows that it has the lowest risk of experiencing level 1 violence, and as the level of violence increases the risk for state-owned oil and gas extraction also increases. However, when oil and gas extraction is state-owned, the level of violence that it has the highest risk of experiencing is level 2. Additionally, the results for high-levels of violence show that private extraction is the most common outcome at level 6 violence, closely followed by no extraction, and then state-owned extraction sharing around 24% of the observations. This shows support for my hypotheses, because the relative risk of violence for private oil and gas decreases as the level increases, and the risk of violence increased for state-owned oil and gas, while the level of violence increases.

The tables analysed above form my hypothesis tests where I have provided an insight into the relationship between my independent variable, the ownership of resource extraction, and dependent variable, the level of violence experienced. The tabular analysis has shown that there is partial support for my hypotheses, in particular for private resource extraction and low-level violence. In the next section I will test whether the relationships introduced in the bivariate hypothesis tests hold when controlling for other factors that could contribute to alternative explanations of the correlations. The Pearson Chi squared tests conducted in this section allow me to see what the data looks like when the dependent and independent variables interact. The following ordinal regressions will allow me to continue to investigate the relationship between resource extraction ownership and the level of violence experienced.

Ordinal Logistic Regression

Ordinal Logistic Regression is a method that will allow me to show the statistical significance of the relationship between ownership of resource extraction and the level of violence experienced by countries, while controlling for other factors that may represent alternative explanations. In the tests that follow I

start by only looking at cases where some form of resource extraction occurs, where private and state-owned extraction are mutually exclusive categories. As a part of the robustness tests I will use no extraction as a comparison to test if the relationships illustrated in this section continue to hold. Additionally, these tests will show, firstly, the direction of the relationships between the dependent and independent variables. Secondly, the results produced in this section will allow me to accept or reject my hypotheses; that private ownership of extraction is likely to experience low-level violence, and state-owned resource extraction will experience high-level violence. Thirdly, the results will enable me to discuss the implications of the results in the next chapter of this thesis. In this section I have conducted two batteries of ordinal logistic regression, one for ownership of mineral extraction, and a second battery for the ownership of oil and gas extraction. In the two batteries I have controlled for; the mineral rents as a percentage of GDP for mineral ownership and oil and gas rents as a percentage of GDP for oil and gas ownership, GDP per capita, and the polity score (Collier & Hoeffler, 2012; Fearon & Laitin, 2003; Marshall et al., 2014; The World Bank, 2015).

Table 5-8 The Effect of Mineral Extraction on Level of Violence

Variables	Level of Violence
Private Mineral	-0.715***
Mineral Rents	-0.037**
Polity	-0.010**
Log GDP Per Capita	-0.185**
n	696
legend: * p<.05, **p<.01, ***p<.001	

First, I will analyse mineral extraction, Table 8 shows the ordinal logistic regression of Private mineral extraction when controlling for Mineral rents as a percentage of GDP, Polity and the log of GDP per capita. This regression is an analysis of country-years where there is some mineral extraction. The coefficient value in this output shows a strong negative relationship with a confident p-value. The results in this table estimate that with a one-unit increase from no private mineral extraction to private mineral extraction (in country-years with some mineral extraction) there is likely to be a decrease in the level of violence experienced. This suggests that the level of violence will decrease when there is a private mineral extraction firm present. Additionally, because this regression analyses only cases with any mineral extraction, if we replaced private mineral

ownership with the independent variable for state-owned mineral extraction, we would see the same result, but with a positive coefficient. Therefore, the results show that we are more likely to see an increase in the level of violence when mineral extraction is state-owned, and a decrease in levels of violence for privately owned mineral extraction.

The second battery performed (Table 9) shows the ordinal logistic regression of private oil and gas extraction. This regression controls for oil and gas rents as a percentage of GDP, Polity and lagged GDP per capita in country-years where there is oil and gas extraction occurring. In Table 9 the coefficient shows that with a one-unit increase towards private oil and gas extraction (in country-years where there is oil and gas extraction) we are likely to see a decrease in the level of violence experienced. The results, shown in table 9, show a significant negative coefficient for private oil and gas extraction. This suggests that violence is likely to decrease when a private firm is extracting oil and gas. Additionally, if it were a state owned oil and gas firm, violence would be likely to increase by the same margin.

Table 5-9 The Effect of Oil and Gas Ownership of Level of Violence

Variables	Level of Violence
Private Oil and Gas	-1.276***
Oil and Gas Rents	0.005
Polity	-0.004
Log GDP Per Capita	-0.708***
n	379
legend: * p<.05, **p<.01, ***p<.001	

The results from both batteries of the ordinal logistic regressions show significant p-value results, as shown by the asterisks. We see in both Tables that the coefficients for private mineral and private oil and gas extraction display three asterisks, meaning the p-values were less than 0.001. The significant p-values suggest that we can confidently reject hypothesis that private resource extraction has no relationship with levels of violence. The results provided in the above regressions show significant results that support my hypotheses; that private extraction will experience low-level violence, and state-owned extraction will experience high-level violence. Therefore, I will move on to some robustness tests, which will test the strength of the relationships introduced

above, and enable me to see if the relationship could be driven by alternative explanations.

Robustness Tests

In this section I will analyse a number of test outputs that will assess the robustness of my results from the initial ordinal logistic regression. If the results from the initial multivariate regression continue to hold then the evidence continues to support my hypotheses that countries with private mineral extraction and/or private oil and gas extraction are more likely to experience low-level violence, and that countries with state-owned extraction are likely to experience high-level violence and civil war onset. Additionally, the results from these robustness tests may also provide more insight into how the interaction between level of violence and ownership of resource extraction may change, when introduced to additional controls, and tests. Firstly I will conduct an ordinal logistic regression with additional control variables to test the strength of my initial results for private mineral extraction and then private oil and gas extraction. Secondly, I will conduct a multinomial logistic regression to show the interaction between ownership of resource extraction and the different levels of violence, treating different levels of violence as independent categories. Third, I will repeat an ordinal logistic regression and a multinomial logistic regression, in order to analyse the relationship between private and state-owned resource extraction with the level of violence against no resource extraction. Lastly, I will conduct another ordinal logistic regression, comparing Africa with Latin America. This will show whether there is a difference in the relationship between ownership of resource extraction and the level of violence in African countries compared to Latin American countries, and whether the results so far are driven by a strong relationship in one region, and a weak relationship in the other.

Ordinal Logistic Regression with Additional Controls

Table 5-10 Ordinal Logistic Regression All Controls

Variables	Model 1	Model 2
Private Mineral	-1.013***	
Private Oil and Gas		-1.692***
Mineral Rents	-0.056**	
Oil and Gas Rents		0.004
Polity	-0.013***	-0.006
Log GDP Per Capita	-0.222**	-0.870***
Unemployment	-0.008	0.023
year	0.054***	0.038*
n	625	352
legend: * p<.05, **p<.01, ***p<.001		
Model 1 = Private Mineral Extraction		
Model 2 = Private Oil and Gas Extraction		

Table 10 shows the ordinal logistic regressions for private mineral extraction, represented in the column for Model 1, and private oil and gas extraction, represented by the column for Model 2. In these regressions I have controlled for Unemployment and year in addition to the original controls; resource rents as a percentage of GDP (mineral rents for mineral extraction and oil and gas rents for oil and gas extraction), Polity and lagged GDP per capita. Table 10 shows that for a one-unit increase to private mineral extraction (in country-years with mineral extraction) we could expect a decrease in the level of violence. Additionally, in Model 2, the model for private oil and gas extraction, we see that for a one-unit increase to private oil and gas extraction (in country-years with oil and gas extraction) we expect to see a decrease in the level of violence. These results suggest that violence is likely to decrease when there is private extraction, and shows generally larger coefficients than those produced in Tables 8 and 9.

In Addition, the results in Table 10 show significant p-value results, for both batteries, for private mineral extraction, and for private oil and gas extraction. We can see that the p-values are less than 0.001 for both private mineral extraction and private oil and gas extraction. Therefore, we can confidently reject the null hypotheses that there is no relationship between private ownership and low-level violence, and that there is no relationship between state-owned extraction and high-level violence.

Multinomial Logistic Regression

Table 5-11 Multinomial Logistic Regression Levels of Violence and Ownership of Extraction

Level of Violence	Model 1	Model 2
Low	0.558	-0.117
Medium	0.053	-1.045*
High	-1.153**	-0.642
n	718	417

legend: * p<.05, **p<.01, ***p<.001
 Model 1 = Private Mineral Extraction
 Model 2 = Private Oil and Gas Extraction

Secondly, Table 11 shows the multinomial logistic regression of the adjusted levels of violence for ownership of mineral extraction (Model 1) and oil and gas extraction (Model 2), where the comparative category is no violence. The level of violence in this test is measured as follows; low-level violence refers to country-years that experience from 1 to 24 fatalities, medium-level violence refers to country-years that experience from 25 to 999 fatalities and high-level violence refers to country-years which experience over 1000 fatalities³. Firstly, looking at Model 1, these results show the relationship between private mineral extraction and the level of violence, in particular, it tells us what is likely to happen to the level of violence when we have a one-unit shift towards private mineral extraction (in country-years with mineral extraction). The most significant output in this battery is for high-level violence, where the results show a significant decrease in the likelihood of the highest levels of violence occurring. The relationship described by this result suggests that in country-years where there is private mineral extraction, we are expected to see a decrease in the level of violence, most prominently away from high-level violence.

Table 11 examines Model 2, private oil and gas extraction, and the relationship with the levels of violence. The coefficients show a negative relationship across all levels, with the largest effect at medium level violence, which suggests that we can expect violence to decrease away from medium level violence by when there is a one-unit increase to private oil and gas extraction. This coefficient, accompanied by the asterisks, shows that the p-value was less than 0.05 meaning that I can confidently reject that private oil and gas extraction is

³ These categories are based on the UCDP's categories of no conflict, low level conflict, armed conflict and 'war' (Pettersson & Wallensteen, 2015).

not related to medium level violence. Therefore, the relationship described in Model 2 shows support for my hypotheses that countries with private extraction are likely to experience low-level violence, and countries with state-owned extraction are likely to experience high-level violence.

No Extraction as a Comparison

In the analysis tables in this section I will be describing what the relationship looks like when comparing private and state-owned extraction to no extraction. First I will describe the relationship of mineral extraction, followed by oil and gas extraction. I will then go on to describe the relationship between private and state-owned extraction for each level of violence through the multinomial logistic regression. This analysis will enable me to show how the severity of violence is affected when there is no extraction compared to either private or state-owned extraction.

Table 5-12 Ordinal Logistic Regression Levels of Violence State and Private Mineral Extraction

Variables	Level of Violence
Private Mineral	0.022
State Mineral	0.713***
Mineral Rents	-0.033*
Polity	-0.015***
Log GDP Per Capita	-0.224***
n	922
legend: * p<.05, **p<.01, ***p<.001	

Table 12 shows the regression for mineral extraction. The coefficient for private mineral extraction shows that when a country-year moves from no extraction to private mineral extraction, the likelihood of higher levels of violence increases. In comparison, the coefficient for state-owned mineral extraction shows that when a country-year moves from no extraction to state-owned mineral extraction, the likelihood of higher levels of violence increases, significantly more than when there is private mineral extraction. The results in Table 12 continue to show support for my hypotheses; we see that the outcome for state-owned mineral extraction shows statistically significant results and a large coefficient, which suggest that when there is state-owned mineral extraction, the level of violence is likely to increase to high-level violence. The table showing the multinomial regression will show us more information on each level of violence and is displayed further in this chapter.

Table 5-13 Ordinal Logistic Regression Level of Violence and Private and State Oil and Gas Extraction

Variables	Level of Violence
Private Oil and Gas	0.469**
State Oil and Gas	1.682***
Oil and Gas Rents	0.013*
Polity	-0.013***
Log GDP Per Capita	-0.584***
n	892
legend: * p<.05, **p<.01, ***p<.001	

Table 13 shows the ordinal logistic regression for oil and gas ownership, and how the level of violence is likely to change when a country-year moves from no oil and gas extraction to either private or state-owned oil and gas extraction. This regression shows that when a country-year moves from no extraction to private oil and gas extraction, the likelihood of higher levels of violence increases, but to a smaller extent than state-owned oil and gas extraction. Additionally, when the move is from no extraction to state-owned extraction, we are likely to see a significant increase in the likelihood of higher levels of violence. The results for both private and state-owned oil and gas extraction show statistical significance, which suggests that I can reject the null hypothesis, that the ownership of oil and gas extraction is not related to the level of violence.

Table 5-14 Multinomial Logistic Regression Levels of Violence and Private and State Owned Extraction

Level of Violence		Model 1	Model 2
Low	Private	-0.331	0.511
	State	-0.889*	0.628
Medium	Private	-0.379	0.399
	State	-0.432	1.444**
High	Private	-1.402***	0.546
	State	-0.249	1.188*
n		979	979

legend: * p<.05, **p<.01, ***p<.001

Model 1 = Mineral Extraction

Model 2 = Oil and Gas Extraction

Table 14 shows the multinomial logistic regression for each level of violence, and the ownership of mineral extraction in Model 1 and the ownership of oil and gas extraction in Model 2. This graph shows the relationship between each level of violence, where the comparative category is no violence, and how private and state-owned extraction affects the level of violence. First, overall

we can see that mineral extraction (Model 1) has a negative relationship with all levels of violence, for both private and state-owned. In comparison, when looking at Model 2, for oil and gas extraction, we see a positive relationship at all levels of violence, which suggests support for my hypotheses. Within Model 1, we see that there are two statistically significant relationships, first between state-owned mineral extraction and low-level violence, and second, between private mineral extraction and high-level violence. The significant results for Model 1 suggest that when there is a shift from no extraction to state-owned extraction low-level violence is likely to decrease, while when there is a shift from no extraction to private mineral extraction, we are likely to see a large decrease in high-level violence. The results from Model 1 suggest that high-level violence is highly unlikely when there is private mineral extraction, and that low-level violence is not likely when there is state-owned mineral extraction.

Model 2 from Table 14 shows the relationship between oil and gas ownership and the levels of violence. First, we see that there are two statistically significant results for state-owned oil and gas extraction, at medium-level violence, and at high-level violence. Table 14 shows that when there is a shift from no extraction to state-owned oil and gas extraction, we are likely to see a 1.444 unit increase in medium-level violence, and a 1.188 unit increase in high-level violence. These results show strong support for my hypothesis, that state-owned extraction is more likely to experience high-level violence. The results from Table 14 suggest that high-level violence is unlikely when there is private mineral extraction, and that low-level violence is unlikely when there is state-owned mineral extraction. Additionally, the results suggest that when there is state-owned oil and gas extraction, medium and high-level violence is likely.

Regional Comparison

Finally, Table 15 shows the ordinal logistic regressions for private mineral extraction and private oil and gas extraction, divided into African cases, and Latin American cases. In Table 15 Model 1 represents the regression for private mineral extraction in country-years where mineral extraction occurs, in Africa, Model 2 represents the regression for private oil and gas (in country-years where oil and gas extraction occurs) in Africa, Model 3 represents the regression for private mineral extraction (in country-years where mineral extraction occurs) in Latin America, and Model 4 represents the regression for private oil and gas

extraction (in country-years where oil and gas extraction occurs) in Latin America.

Table 5-15 Ordinal Logistic Regression Comparing regions

	Africa		Latin America	
Variables	Model 1	Model 2	Model 3	Model 4
Private Mineral	-1.105***		0.144	
Private Oil and Gas		-0.371		-2.890***
Mineral Rents	-0.035*		-0.101	
Oil and Gas Rents		0.020**		-0.052**
Polity	-0.010**	-0.008	-0.012	0.019
Log GDP Per Capita	-0.258*	-1.048***	0.417*	-1.016***
Unemployment	-0.006	0.055*	-0.045	0.066
n	425	207	200	145

legend: * $p < .05$, ** $p < .01$, *** $p < .001$

Model 1 = Private Mineral Extraction

Model 3 = Private Mineral Extraction

Model 2 = Private Oil and Gas Extraction

Model 4 = Private Oil and Gas Extraction

The results from these regressions show that there is a significant negative relationship between private mineral extraction in Africa and the level of violence, meaning that when there is a one-unit increase to private mineral extraction we should expect a 1.105 unit decrease in the level of violence, in Africa. Alternatively, the regression for private mineral extraction in Latin America shows a positive relationship between private mineral extraction and the level of violence, meaning that when there is a one-unit increase to private mineral extraction, we should expect a 0.144 increase in the level of violence. These results suggest that the strong negative relationship between private mineral extraction and the level of violence in the regression in Table 8 above could be driven by the strong relationship we see between level of violence and private mineral extraction in Africa.

Additionally, the regressions in Table 15 for private oil and gas extraction both show strong negative relationships between private oil and gas extraction and the level of violence for both Africa and Latin America. In Model 2 we see that with a one-unit increase to private oil and gas extraction in Africa, we are likely to see a 0.371 decrease in the level of violence. In Model 4 we see a stronger relationship, which shows that with a one-unit increase to private oil and gas extraction in Latin America, we are likely to see a 2.890 decrease in the level of violence. The difference between these two regressions suggests that the initial regression in Table 9 could be driven by the strong result for the relationship

between private oil and gas extraction and the level of violence in Latin America.

The results from Table 15 demonstrate how ownership of resource extraction interacts with the levels of violence a state is likely to experience, and how the relationship can change from African countries to Latin American countries. The results for Model 1 and Model 4 show significant p-values, as both represent p-values of less than 0.001, suggesting that I can confidently reject the hypothesis that private mineral extraction in Model 1 and private oil and gas extraction in Model 4 are related to the level of violence by chance. Therefore, these results indicate that support for my hypotheses are stronger for private mineral extraction in Africa, and stronger for private oil and gas extraction in Latin America.

The Robustness tests conducted above demonstrate the strength of the relationship between ownership of resource extraction and level of violence. The results, throughout the ordinal logistic regressions and the multinomial logistic regression, held and in some cases were strengthened. The robustness tests have provided more insight into the relationship between ownership of resource extraction and the level of violence countries experience. The results continue to show support for my hypotheses, with regard to private ownership of resource extraction and low-levels of violence, and with regard to state-owned extraction and high-level violence. We also observe an intriguing difference in the relationships between oil and gas extraction and the level of violence and mineral extraction and the level of violence, and how these relationships differ depending on the region, this will be discussed in more detail in the following chapter.

Summary

The analysis provided in this chapter has enabled me to describe the relationship between the ownership of resource extraction and the level of violence a state experiences. The results from the regressions show support for my hypotheses for both mineral extraction and oil and gas extraction. I have provided results that show that private resource extraction has a strong relationship with low-levels of violence, particularly with oil and gas extraction, which shows stronger coefficients than those produced for mineral extraction. I provided further analysis of the relationship between privately owned resource

extraction from the robustness tests, where I show that private mineral ownership is unlikely to experience high level violence. Furthermore, the results show that state-owned mineral extraction has a strong relationship with higher-levels of violence. In particular, through the robustness tests we see that state-owned mineral extraction is unlikely to experience low-level violence, and state-owned oil and gas extraction is very likely to experience high-level violence. Additionally, as a result of the robustness tests we observe that the relationships differ between Africa and Latin America; where we see a strong negative relationship between private mineral extraction and the level of violence in Africa, and a strong negative relationship between private oil and gas extraction and the level of violence in Latin America. The results produced in this analysis are robust, because the results held, and were strengthened during the robustness tests. The specificity of the hypotheses proposed in this thesis opened a path to numerous alternative explanations and outcomes, however, despite the opportunities to be proven wrong, the results support my hypotheses. I will discuss the implications of these results for countries, companies and organisation, in more detail in the following chapter.

6. Discussion

Introduction

In this Chapter I will outline and interpret the results produced in the previous chapter, and discuss the results in relation to my two hypotheses and theory. I will conclude this chapter with a discussion of the position of my findings within the literature on natural resources and conflict, and outline areas for further research. In this thesis I have reviewed the literature that analyses the relationships between natural resources and violence. Accordingly, from the literature review, I identified that research has generally not yet examined the effect that the ownership structure of natural resource exploitation has on conflict outcomes. The theoretical framework provided in this thesis enabled the design of two specific hypotheses:

H1: Countries with private extraction firms will experience low-level violence and extortion in an attempt by groups to redress grievances.

H2: Countries with state-owned extraction firms will be more likely to experience high-level violence and the onset of civil war.

From the hypotheses, I formulated and designed empirical tests to investigate the nature of the relationship between ownership of resource extraction and the level of violence states experience. By testing the relationship between these two variables I have produced results that show support for my hypotheses. I analysed a new dataset of the ownership structure of natural resource extraction in Africa and Latin America 1989-2014. The results from the regression analysis produced in the previous chapter show support for both hypotheses produced in this thesis, regarding the ownership of natural resource extraction and the severity of violence.

In this chapter I intend to discuss my interpretations of the results, and the implications of my findings. Firstly I will interpret and explain what the results from the previous chapter mean for my hypotheses, and provide answers for my research question. Secondly I will discuss how these findings fit into the literature and theories of natural resources and conflict. Finally, I will provide suggestions for future research, based on the limitations and scope of this study and my findings.

Results

The tests conducted within the previous chapter, have shown an insight into the relationships between private and state-owned resource extraction in regard to mineral extraction, and oil and gas extraction. The results from the ordinal logistic regressions demonstrate that there is a strong and significant negative relationship between private resource extraction and the level of violence. Furthermore, the results for private oil and gas showed larger estimates than those produced for private mineral extraction. The strong negative relationships shown for private resource extraction are mirrored by the results for state-owned extraction. We see significant positive relationships between state-owned extraction and the level of violence. The relationships described in the results suggest that the level of violence is likely to decrease when we have private resource extraction, and likely to increase when we have state-owned resource extraction, given that there is some form of resource extraction occurring. Therefore, these results support my hypotheses.

Ordinal Logistic Regression Results

In the Analysis chapter I executed a number of logistic regressions to examine the relationship between the ownership of resource extraction and the level of violence. I have disaggregated the effects for mineral extraction and oil and gas extraction, in order to show the complexity of the relationship between extraction and violence, and how the relationships may differ depending on the type of resource extraction. Firstly, I will discuss the relationship between private mineral extraction, followed by private oil and gas extraction, in country-years where resource extraction occurred. Secondly, I will discuss how ownership of mineral extraction and oil and gas extraction relates to low, medium and high levels of violence. Third, I will discuss the how the relationships changed when comparing the different types of ownership to observations with no resource extraction. Lastly, I will discuss the regional comparison of the relationship between ownership of extraction and the level of violence.

First, the analysis of the ordinal logistic regression for private mineral extraction shows a strong, and significant negative relationship with the level of violence. The results from this regression show that the likelihood of higher level of violence decreases when there private mineral extraction. Furthermore, the results for this regression hold when introduced to the additional control

variables, unemployment rate and year. In the ordinal logistic regressions, I am only looking at the relationship between ownership of resources and the severity of violence, when resource extraction occurs. Therefore, the results for state-owned mineral extraction mirror the results for private mineral extraction. The regressions show that for state-owned mineral extraction, the level of violence is likely to increase. These results support my hypotheses, for private ownership and low-level violence, and state-ownership and high-level violence.

The analysis of the ordinal logistic regression for private oil and gas extraction also shows a strong, and significant negative relationship with the level of violence. We see that when there is oil and gas extraction, the likelihood of higher levels of violence decreases if the extraction is privately owned, and subsequently, violence is likely to increase if there is state-owned oil and gas extraction. Additionally, these results continue to hold when introduced to additional control variables, unemployment and year. Therefore, I can say that these results prove to be robust. The results from the ordinal logistic regression for oil and gas ownership also show support for my hypotheses, that private ownership is likely to experience low-level violence, and state-ownership is likely to experience high-level violence. Next I will discuss the results across low, medium and high level violence, and whether the results still hold and continue to support my hypotheses.

Multinomial Logistic Regression Results

The second regression performed as part of the robustness tests in the analysis chapter shows the multinomial logistic regression for the three levels of violence for private mineral extraction in Model 1 and private oil and gas extraction in Model 2. In this regression we see how the ownership of resource extraction relates to low-level, medium-level and high-level violence when no violence is used as the base level, in country-years where resource extraction occurs. The results for Model 1 show that there is a significant negative relationship between high-level violence and private mineral extraction, this suggests that countries with private mineral extraction are likely to see a decrease in high-level violence. Alternatively, the regressions for low-level and medium-level violence show positive relationships with private mineral extraction. The small positive coefficients of low (0.558) and medium (0.053) level violence, in addition to the coefficient for high-level violence of -1.153, suggest that the results from the first

ordinal logistic regression, of the negative relationship between private mineral extraction and the level of violence, were being driven by the strong negative relationship with high-level violence. The relationship discussed here continues to show support for my hypotheses, particularly hypothesis two, because as a result of the negative relationship with private mineral extraction and high-level violence that high level violence is strongly related to state-owned private mineral extraction.

The multinomial logistic regression for Model 2 shows a negative relationship between private oil and gas extraction at all levels of violence, with the strongest and most significant result showing for medium-level violence. The result for medium-level violence and private oil and gas extraction estimates that there is likely to be a decrease in medium level violence when oil and gas extraction is privately owned, and conversely, we are likely to expect an increase in medium-level violence if oil and gas extraction is state-owned. These results continue to support my hypotheses for both private and state-owned oil and gas extraction. The results continue to show that there is a strong relationship between private ownership of resource extraction and low-level violence across Latin America and Africa.

No Extraction Comparison Results

Thirdly, I conducted further regressions to test whether the relationship between ownership structure and the severity of violence held when comparing private and state-owned resource extraction, to no extraction. The ordinal logistic regressions performed show the likelihood of the level of violence increasing when a country-year shifts from no extraction, to either private or state-owned extraction, for mineral and oil and gas extraction. The regression for mineral extraction continues to show that when mineral extraction is state-owned the likelihood of higher levels of violence increases, significantly more than when mineral extraction is privately owned. Furthermore, the ordinal logistic regression for oil and gas extraction shows a strong positive relationship between state-owned oil and gas extraction, which suggests that the likelihood of higher levels of violence increases significantly more than private owned oil and gas. These results show support for my hypothesis that state-owned extraction is likely to experience high-level violence.

Additionally, I performed a multinomial logistic regression showing the relationship between privately owned and state-owned resource extraction, where the base category is no violence. This regression tells us what direction the level of violence is likely to go, when a country-year moves from no extraction, to either state-owned or privately owned extraction. In Model 1, which represents mineral ownership, we see a significant strong negative relationship between private mineral ownership and high-level violence, and a significant negative relationship between low-level violence and state-owned mineral extraction. These results suggest that the likelihood of higher levels of violence decreases when mineral extraction is private, and that the likelihood of low-level violence decreases when mineral ownership is state-owned, compared to no extraction. In Model 2, we see the results for oil and gas extraction. Model 2 shows that there is a significant positive relationship between state-owned oil and gas extraction and medium level violence, as well as for high-level violence. The regression for oil and gas ownership suggests that the likelihood of medium and high levels of violence increases when oil and gas extraction is state-owned compared to no extraction.

Regional Comparison Results

Next I will discuss how the relationships between resource ownership and severity of violence differ when comparing Africa to Latin America for private mineral extraction and private oil and gas extraction. The ordinal logistic regression comparing Africa and Latin America, in country-years where extraction occurs, shows that in Africa, when mineral extraction is privately owned, the likelihood of higher levels of violence decreases significantly. Additionally, the regression for oil and gas extraction in Latin America shows a significant negative relationship between private ownership and the level of violence. This suggests that the likelihood of higher levels of violence is significantly decreased when oil and gas extraction is privately owned. The strength of these results suggests that the initial results, from the previous regressions that show significant negative relationships between private ownership of resource extraction and the severity of violence, could be driven by the results shown in the ordinal logistic regression that compares Africa and Latin America. The strong relationships described here provide further support for my hypotheses, that private ownership of resource extraction is more likely to experience low-level violence. Additionally, these results show that the

relationships between resource ownership and violence can differ depending on the locations; because different places have a different natural resource, and they have different populations that could be motivated by different factors (Mac Ginty & Williams, 2009; Switzer, 2001). In the next section I will discuss what these findings mean for the literature of resource-conflicts.

Findings

The findings discussed above show that there is support for both my hypotheses regarding private ownership and lower levels of violence and state-owned extraction and higher levels of violence. As discussed in the literature review chapter of this thesis, there is a gap in the existing literature where there is little evaluation of the relationship between the types of resource ownership and how this can affect the level of violence experienced. Wegenast (2015) was one exception to the resource-conflict literature, as his article addressed how ownership of hydrocarbon production (oil and natural gas) affects the potential for internal conflict in 40 countries between 1989 and 2010 (T. Wegenast, 2015). Wegenast (2015) found that 'state-controlled oil and gas production fosters internal violence', while privately owned production does 'not affect the risk of intrastate violence' (T. Wegenast, 2015). In addition, Wegenast (2015) uses greed and government spending to explain the relationship between state-owned hydrocarbon production and the onset of intrastate conflict (T. Wegenast, 2015). In comparison to Wegenast's (2015) results, this thesis shows similar results, in regard to state-owned oil and gas extraction; however, this thesis builds on this further. This thesis shows the effect of ownership of resource extraction on the level of violence, this thesis also examines the effect of the ownership of mineral extraction in addition to oil and gas extraction, and this thesis can show the effect of private ownership compared to state-ownership in addition to the effect of each form of ownership in comparison to no resource extraction.

In the theory chapter I argued that potential rebel groups will anticipate the response they are likely to receive from the government and the resource extraction company, and will initiate either low-level violence when resource extraction is privately owned, or will initiate high-level violence when resource extraction is state-owned. The type of ownership of resources, whether privately

owned or state-owned, influences the behaviour and decisions of potential rebels. Private resource extraction companies are more likely to provide concessions and compensate aggrieved groups, or encourage the government to do so, in order to avoid the larger costs associated with higher levels of conflict, being loss of life, loss of profit as a result of stalled operations, and potential loss of reputation in the international market. Therefore, potential rebels will anticipate the behaviour of private extraction firms and initiate low-level violence because it will be the most effective strategy. Conversely, state-owned resource extraction companies are more likely to pass the costs of violence and conflict on to the state, which has the ability to absorb the costs associated with conflict and violence (profit, life and reputation). Therefore, potential rebel groups will find that low-level violence and extortion is ineffective, and will need to escalate their efforts in order to pressure the state and the company to address their demands.

The mix of grievance and opportunity theories discussed in the theory chapter of this thesis provided an understanding of why potential rebel groups will use either high or low-level violence depending on whether resource extraction was state-owned or privately owned. The results of this study have confirmed that there is a relationship between privately owned resource extraction and lower levels of violence, and a relationship between state-owned resource extraction and higher levels of violence, in Latin America and Africa from 1989-2014. These results are particularly strong when I compare the two regions in my sample, where Latin America has a strong relationship between low levels of violence and private oil and gas ownership, and Africa has a strong relationship between low levels of violence and private ownership of mineral extraction. Despite the difference in regional relationships, the results still confirm my hypotheses. The results and findings discussed in this thesis have provided further understanding, within the resource-conflict literature, of the relationship between ownership of resource extraction and the severity of violence.

Further Research

This thesis provides explanations for the relationships between resource extraction and violence severity, however these explanations are limited, and will require further research to fully illustrate the relationship between resource

extraction and conflict around the world. The analysis undertaken in this thesis is limited in its geographic scope, as well as the scope of violence that is measured. Further research into the ownership of resources worldwide by expanding the scope to include all resource-producing countries will benefit scholarship in this field. I would expect to see the relationships between ownership of resource extraction and the severity of violence to differ across other regions, as shown in the regression comparing Africa to Latin America in this study, the regions differ in terms of resource endowments, population size, history and type of government. Furthermore, research with more inclusive measures of violence, as this thesis attempts to capture low-level violence through the best estimate of fatalities within a country-year. Utilising geo-referenced event data would compliment a study looking at the effect that resources can have on violence. In particular, being able to spatially disaggregate violence and the location of resources being extracted; this will enable a researcher to be able to correlate violent events with resource extraction. Additionally, research into the group concentration, using for example the Minorities at Risk dataset, within geographical regions that experience violence, in addition to data on the ownership of resource extraction, could add further insight to the literature. Due to the scope of this thesis, I was unable to expand this research across additional regions.

The results produced in this thesis suggest that private ownership of resource extraction and the severity of violence are related. The results and conclusions of this thesis pave the way for further research into the mechanisms that drive the decisions for rebel groups to instigate violence, the forms of violence they use. In particular, further research into the use and effectiveness of non-violent methods when there resource extraction is privately owned. Additionally, further research could investigate the decisions and activity associated with the escalation from low-level violence to civil war when there is state-owned resource extraction. For example, do weak rebel groups really opt out of rebellion when resource extraction is state-owned? And do rebel groups really think that because the company is privately owned that they will be able to extract concessions and the state will be less willing to repress? Furthermore, research into the impact of specific types of resources, Wegenast (2015) looked at hydrocarbons, as have many other resource-conflict scholars, in addition to others who argue that lootable resources are highly correlated to violence

(Collier & Hoeffler, 2012; Fjelde, 2009; Macartan Humphreys, 2005; Janus, 2012; M. L. Ross, 2004; T. Wegenast, 2015). This research has looked at hydrocarbons in addition to capital-intensive mineral resources; further research into the ownership and control of resources such as water could complement this research, and provide more sources for companies, scholars and policy makers around the world.

Conclusion

In conclusion, this thesis has outlined the literature on natural resources and conflict, and has demonstrated that there is a gap where ownership of resource extraction and the impact the type of ownership has on the severity of violence countries experience. Through the theory chapter, I have explained the mechanisms that suggest why the type of ownership of resource extraction, state-owned or private, could affect the decisions of groups to instigate violence, particularly different levels of violence, depending on the type of ownership. Furthermore, within the theory chapter, I explain why private ownership of resource extraction can encourage different behaviour in potential rebel groups, compared to state-owned resource extraction. I have explained the methodology of this study, how I coded the ownership of resource extraction, how I collected information to build a new dataset on the structure of resource extraction ownership, and how used multivariate, bivariate and descriptive statistics to analyse this data. And finally, I have conducted an analysis of the relationship between private and state-owned resource extraction and level of violence. I found that private ownership of resources is correlated with lower-levels of violence, and state-owned resource extraction is correlated with higher-levels of violence. As a result of the analysis provided in this thesis I can confidently confirm that the results support my hypotheses.

7. Bibliography

- Acuña, R. M. (2015). The politics of extractive governance: Indigenous peoples and socio-environmental conflicts. *The Extractive Industries and Society*, 2(1), 85-92. doi:10.1016/j.exis.2014.11.007
- Allison, P. D. (1999). *Multiple Regression: A Primer*. California: Sage Publications.
- Altman, J. (2012). Indigenous Rights, Mining Corporations, and the Australian state. In S. Sawyers & E. T. Gomez (Eds.), *The Politics of Resource Extraction: Indigenous Peoples, Multinational Corporations, and the State* (pp. 46-74). Great Britain: Palgrave Macmillan.
- Asal, V., Findley, M., Piazza, J. A., & Walsh, J. I. (2015). Political Exclusion, Oil, and Ethnic Armed Conflict. *Journal of Conflict Resolution*, 1(25), 1-25.
- Ballentine, K., & Nitzschke, H. (2004). Business and Armed Conflict: An Assessment of Issues and Options. *Die Friedens-Warte*, 79(1/2), 35-56.
- Basedau, M., & Lay, J. (2009). Resource Curse or Rentier Peace? The Ambiguous Effects of Oil Wealth and Oil Dependence on Violent Conflict. *Journal of Peace Research*, 46(6), 757-776. doi:10.1177/0022343309340500
- Bates, R., Greif, A., & Singh, S. (2002). Organizing Violence. *Journal of Conflict Resolution*, 46(5), 599-628. doi:10.1177/002200202236166
- Bell, C., & Wolford, S. (2015). Oil Discoveries, Shifting Power, and Civil Conflict. *International Studies Quarterly*, 59(3), 517-530. doi:10.1111/isqu.12150
- Bernstein, R., Eros, M., & Quintana-Velázquez, M. (2006). *Mineral Facilities of Latin America and Canada*.
- Besley, T., & Persson, T. (2010). State Capacity, Conflict, and Development. *Econometrica*, 78(1), 1-34. doi:10.3982/ecta8073
- Bhattacharyya, S., & Hodler, R. (2010). Natural resources, democracy and corruption. *European Economic Review*, 54(4), 608-621. doi:10.1016/j.euroecorev.2009.10.004
- Blattman, C., & Miguel, E. (2010). Civil War. *Journal of Economic Literature*, 48(1), 3-57. doi:<http://dx.doi.org/10.1257/jel.48.1.3>
- Boege, V., & Franks, D. M. (2012). Reopening and developing mines in post-conflict settings: The challenge of company-community relations. In P. Lujala & S. A. Rustad (Eds.), *High-Value Natural Resources and Post-Conflict Peacebuilding*. London: Earthscape.
- Boynton, R. (Writer). (2013). Big Men. In R. Boynton (Producer). Boston.
- British Petroleum. (2016). Our History. Retrieved from <http://www.bp.com/en/global/corporate/about-bp/our-history.html>
- Brunnschweiler, C. N., & Bulte, E. H. (2009). Natural resources and violent conflict: resource abundance, dependence, and the onset of civil wars. *Oxford Economic Papers*, 61(4), 651-674. doi:10.1093/oep/gpp024
- Buhaug, H., Cederman, L.-E., & Gleditsch, K. S. (2014). Square Pegs in Round Holes: Inequalities, Grievances, and Civil War. *International Studies Quarterly*, 58(2), 418-431. doi:10.1111/isqu.12068
- Cederman, L.-E., Gleditsch, K. S., & Buhaug, H. (2013a). Country-Level Inequalities and Civil War *Inequality, Grievances, and Civil War* (pp. 143-167). New York: Cambridge University Press.
- Cederman, L.-E., Gleditsch, K. S., & Buhaug, H. (2013b). From Horizontal Inequality to Civil War via Grievances *Inequality, Grievances, and Civil War* (pp. 30-52). New York: Cambridge University Press.
- Cederman, L.-E., Gleditsch, K. S., & Buhaug, H. (2013c). Inequality and Grievances in the Civil War Literature *Inequality, Grievances, and Civil War* (pp. 11-29). New York: Cambridge University Press.

- Cederman, L.-E., Gleditsch, K. S., & Buhaug, H. (2013d). Introduction *Inequality, Grievances, and Civil War* (pp. 1-7). New York: Cambridge University Press.
- Collier, P., & Hoeffler, A. (2012). High-value natural resources, development, and conflict: Channels of Causation. In P. Lujala & S. A. Rustad (Eds.), *Hi-Value Natural Resources and Post-Conflict Peacebuilding* (pp. 297-312). London: Earthscan.
- Collier, P., & Hoeffler, A. (2004). Greed and grievance in civil war. *Oxford Economic Papers*, 56(4), 563-595. doi:10.1093/oep/gpf064
- Collier, P., Hoeffler, A., & Rohner, D. (2009). Beyond greed and grievance: feasibility and civil war. *Oxford Economic Papers*, 61(1), 1-27. doi:10.1093/oep/gpn029
- Cotet, A. M., & Tsui, K. K. (2013). Oil and Conflict: What Does the Cross Country Evidence Really Show? *American Economic Journal: Macroeconomics*, 5(1), 49-80. doi:10.1257/mac.5.1.49
- Croicu, M. C., & Sundberg, R. (2015). *UCDP Georeferenced Event Dataset Codebook Version 2.0*.
- Davies, J. C. (1962). Toward a Theory of Revolution. *American Sociological Review*, 27(1), 5-19.
- de Soysa, I., & Fjelde, H. (2010). Is the hidden hand an iron fist? Capitalism and civil peace, 1970-2005. *Journal of Peace Research*, 47(3), 287-298. doi:10.1177/0022343310362167
- De Soysa, I., & Neumayer, E. (2007). Resource Wealth and the Risk of Civil War Onset: Results from a New Dataset of Natural Resource Rents, 1970-1999. *Conflict Management and Peace Science*(24), 201-218.
- Englebert, P., & Ron, J. (2004). Primary Commodities and War: Congo-Brazzaville's Ambivalent Resource Curse. *Comparative Politics*, 37(1), 61-81. doi:10.2307/4150124
- Ericsson, M., Massey, F. L., & Petrilli, E. (2011). Overview of state ownership in the global minerals industry. Retrieved from Washington DC: <http://documents.worldbank.org/curated/en/2011/05/18550919/overview-state-ownership-global-minerals-industry>
- Eros, J. M., & Candelario-Quintana, L. (2006). *Mineral Facilities of Africa and the Middle East*.
- Fearon, J. D., & Laitin, D. D. (2003). Ethnicity, Insurgency, and Civil War. *The American Political Science Review*, 97(1), 75-90.
- Fearon, J. D., & Laitin, D. D. (2011). Sons of the Soil, Migrants, and Civil War. *World Development*, 39(2), 199-211. doi:10.1016/j.worlddev.2009.11.031
- Fjelde, H. (2009). Buying Peace? Oil Wealth, Corruption and Civil War, 1985--99. *Journal of Peace Research*, 46(2), 199-218. doi:10.1177/0022343308100715
- Gomez, E. T., & Sawyers, S. (2012). State, Capital, Multinational Institutions, and Indigenous Peoples. In S. Sawyers & E. T. Gomez (Eds.), *The Politics of Resource Extraction: Indigenous Peoples, Multinational Corporations, and the State* (pp. 33-45). Great Britain: Palgrave Macmillan.
- Gordon, R. A. (2010). *Regression Analysis for the Social Sciences*. Hoboken: Taylor and Francis.
- Guidolin, M., & La Ferrar, E. (2007). Diamonds are Forever, Wars are Not: Is Conflict Bad for Private Firms? *The American Economic Review*, 97(5), 1978-1993.
- Gurr, T. R. (1970). *Why Men Rebel*: Princeton University Press.
- Humphreys, M. (2005). Natural Resources, Conflict, and Conflict Resolution. *Journal of Conflict Resolution*, 49(4), 508-537.

- Humphreys, M., & Weinstein, J. M. (2008). Who fights? The Determinants of Participation in Civil War. *American Journal of Political Science*, 52(2), 436-455.
- Janus, T. (2012). Natural resource extraction and civil conflict. *Journal of Development Economics*, 97(1), 24-31. doi:10.1016/j.jdeveco.2011.01.006
- Kawamoto, K. (2012). Diamonds in war, diamonds for peace: Diamond sector management and kimberlite mining in Sierra Leone. In P. Lujala & S. A. Rustad (Eds.), *High-Value Natural Resources and Post-Conflict Peacebuilding*. London: Earthscape.
- Kellstedt, P. M., & Whitten, G. D. (2008). *Fundamentals of Political Science Research* (pp. 294). Retrieved from <http://otago.eblib.com.au.ezproxy.otago.ac.nz/patron/FullRecord.aspx?p=410120>
- Kolstad, I., & Wiig, A. (2009). Is Transparency the Key to Reducing Corruption in Resource-Rich Countries? *World Development*, 37(3), 521-532. doi:10.1016/j.worlddev.2008.07.002
- Koubi, V., & Bohmelt, T. (2013). Grievances, economic wealth, and civil conflict. *Journal of Peace Research*, 51(1), 19-33. doi:10.1177/0022343313500501
- Koubi, V., Spilker, G., Bohmelt, T., & Bernauer, T. (2013). Do natural resources matter for interstate and intrastate armed conflict? *Journal of Peace Research*, 51(2), 227-243. doi:10.1177/0022343313493455
- Le Billon, P. (2011). *Wars of plunder : conflicts, profits and the politics of resources*. London: C Hurst & Co..
- Le Billon, P., & Cervantes, A. (2012). Oil Prices, Scarcity, and Geographies of War. In A. Kobayashi (Ed.), *Geographies of Peace and armed Conflict* (pp. 19-27). New York: Routledge.
- Lujala, P. (2010). The spoils of nature: Armed civil conflict and rebel access to natural resources. *Journal of Peace Research*, 47(1), 15-28.
- Lujala, P., Gleditsch, N. P., & Gilmore, E. (2005). A Diamond Curse?: Civil War and a Lootable Resource. *Journal of Conflict Resolution*, 49(4), 538-562. doi:10.1177/0022002705277548
- Luong, P. J., & Weinthal, E. (2006). Rethinking the Resource Curse: Ownership Structure, Institutional Capacity, and Domestic Constraints*. *Annual Review of Political Science*, 9(1), 241-263. doi:10.1146/annurev.polisci.9.062404.170436
- Mac Ginty, R., & Williams, A. (2009). *Conflict and Development*. New York: Routledge.
- Mahler, A. (2011). Oil in Venezuela: Triggering Conflicts or Ensuring Stability? A Historical Comparative Analysis. *Politics and Policy*, 39(4), 583-611.
- Marshall, M. G., Gurr, T. R., & Jagers, K. (2014). *Polity IV Project: Political Regime Characteristics and Transitions, 1800-2013*.
- Miller, M. M. (2014). *Lime*. Retrieved from <http://minerals.usgs.gov/minerals/pubs/commodity/lime/myb1-2013-lime.pdf>
- Morse, E., & Turgeon, A. (2016). Encyclopedic Entry: Natural gas. Retrieved from <http://education.nationalgeographic.org/encyclopedia/natural-gas/>
- Natural Resource Governance Institute. (2014). *Natural Resource Charter: Second Edition*. Retrieved from Oxford:
- Nillesen, E., & Bulte, E. (2014). Natural Resources and Violent Conflict. *Annual Review of Resource Economics*, 6(1), 69-83. doi:10.1146/annurev-resource-091912-151910
- O'Brien, R., & Williams, M. (2010). *Global Political Economy* (3rd ed.). United Kingdom: Palgrave Macmillan.

- Office of Technology Assessment. (1979). Mineral Exploration, Development, and Production: Technology, Participants, and the Role of Federal Onshore Land Management of Fuel and Nonfuel Minerals in Federal Land. Washington: U.S. Government Printing Office.
- Ogunleye, E. K. (2008). Natural resource abundance in Nigeria: From dependence to development. *Resources Policy*, 33(3), 168-174. doi:10.1016/j.resourpol.2008.03.002
- Omeje, K. (2008). Extractive Economies and Conflicts in the Global south: Re-Engaging Rentier Theory and Politics. In K. Omeje (Ed.), *Extractive Economies and Conflicts in the Global South: Multi-Regional Perspectives on Rentier Politics*. Burlington, USA: Ashgate Publishing Company.
- Pettersson, T., & Wallensteen, P. (2015). *Armed Conflicts*.
- Pollock, P. H. (2012). *The Essentials of Political Analysis* (Fourth Edition ed.). Washington, DC: CQ Press.
- Regan, P. M., & Norton, D. (2005). Greed, Grievance, and Mobilization in Civil Wars. *Journal of Conflict Resolution*, 49(3), 319-336. doi:10.1177/0022002704273441
- Reno, W. (1997). African weak states and commercial alliances. *African Affairs*, 96(383), 165-185.
- Reno, W. (1999). *Warlord Politics and African States*. Boulder: Lynne Rienner Publishers.
- Reuveny, R., Maxwell, J. W., & Davis, J. (2011). On conflict over natural resources. *Ecological Economics*, 70(4), 698-712. doi:10.1016/j.ecolecon.2010.11.004
- Rice, S. E., & Patrick, S. (2008). *Index of State Weakness in the Developing World*. Retrieved from Washington, DC:
- Rio Tinto. (2016). Our Business. Retrieved from <http://www.riotinto.com/our-business-75.aspx>
- Ross, M. (2006). A Closer Look at Oil, Diamonds, and Civil War. *Annual Review of Political Science*, 9(1), 265-300. doi:10.1146/annurev.polisci.9.081304.161338
- Ross, M. (2013). The Politics of the resource curse: a review. In C. Lancaster & N. v. d. Walle (Eds.), *Handbook of Politics of Development*: Oxford University Press.
- Ross, M. L. (2004). How Do Natural Resources Influence Civil War? Evidence from Thirteen Cases. *International Organization*, 58(01). doi:10.1017/s002081830458102x
- Rustad, S. A., & Binningsbo, H. M. (2012). A price worth fighting for? Natural resources and conflict recurrence. *Journal of Peace Research*, 49(4), 531-546. doi:10.1177/0022343312444942
- Rustad, S. A., Lujala, P., & Le Billon, P. (2012). Building or spoiling peace? Lessons from the management of high-value natural resources. In P. Lujala & S. A. Rustad (Eds.), *High-Value Natural Resources and Post-Conflict Peacebuilding*. London: Earthscape.
- Sawyers, S., & Gomez, E. T. (2012). Transnational Governmentalities in the Context of resource Extraction. In S. Sawyers & E. T. Gomez (Eds.), *The Politics of Resource Extraction: Indigenous Peoples, Multinational Corporations, and the State*. Great Britain: Pulgrave Macmillan.
- Snyder, R. (2006). Does Lootable Wealth Breed Disorder? A Political Economy of Extraction Framework *Comparative Political Studies*, 39(8), 943-968.
- Sorens, J. (2011). Mineral production, territory, and ethnic rebellion: The role of rebel constituencies. *Journal of Peace Research*, 48(5), 571-585. doi:10.1177/0022343311411743

- Switzer, J. (2001). *Armed Conflict and Natural Resources: The Case of the Minerals Sector*. Retrieved from https://www.iisd.org/pdf/2002/envsec_mining_conflict.pdf
- The World Bank. (2015). *World Development Indicators*.
- Thies, C. G. (2010). Of rulers, rebels, and revenue: State capacity, civil war onset, and primary commodities. *Journal of Peace Research*, 47(3), 321-332. doi:10.1177/0022343310361841
- Torres, I. E. (2004). *The Mineral Industry of Venezuela*. Retrieved from U.S Geological Survey. (2010). *Metals and Minerals*. Retrieved from <http://minerals.usgs.gov/minerals/pubs/commodity/myb/>
- van der Ploeg, F. (2011). Natural Resources: Curse or Blessing? *Journal of Economic Literature*, 49(2), 366-420.
- van der Ploeg, F., & Rohner, D. (2012). War and natural resource exploitation. *European Economic Review*, 56(8), 1714-1729. doi:10.1016/j.euroecorev.2012.09.003
- Walter, B. F. (2012). Civil Wars, Conflict Resolution, and Bargaining Theory. In W. Carlsnaes, T. Risse, & B. A. Simmons (Eds.), *Handbook of International Relations* (pp. 656-672). London: SAGE Publications. Retrieved from <http://otago.ebilib.com.au/patron/FullRecord.aspx?p=1046504>.
- Wegenast, T. (2015). Oil, Natural Gas, and Intrastate Conflict: Does Ownership Matter? *International Interactions*. doi:10.1080/03050629.2015.1046599
- Wegenast, T. C., & Basedau, M. (2014). Ethnic fractionalisation, natural resources and armed conflict. *Conflict Management and Peace Science*, 31(4), 432-457.
- Weinstein, J. (2007). *Inside Rebellion: The Politics of Insurgent Violence*. New York: Cambridge University Press.
- Welsch, H. (2008). Resource abundance and internal armed conflict: Types of natural resources and the incidence of 'new wars'. *Ecological Economics*, 67(3), 503-513. doi:10.1016/j.ecolecon.2008.01.004
- Wick, K., & Bulte, E. H. (2006). Contesting resources – rent seeking, conflict and the natural resource curse. *Public Choice*, 128(3-4), 457-476. doi:10.1007/s11127-005-9010-z
- Wiig, A., & Kolstad, I. (2012). Assigned corporate social responsibility in a rentier state: The case of Angola. In P. Lujala & S. A. Rustad (Eds.), *High-Value Natural Resources and Post-Conflict Peacebuilding*. London: Earthscape.
- Williams, R. M. (2003). *The wars within: People and states in conflict*. Ithaca: Cornell University Press.
- Yager, T. R. (2015). *The Mineral Industry of Kenya*. Retrieved from
- Yager, T. R. (2015). *The Mineral Industry of Sudan*. Retrieved from
- Zandvliet, L. (2005). Assessing Company Behaviour in Conflict Environments: A Field Perspective. In K. Ballentin & H. Nitzschke (Eds.), *Profiting From Peace: Managing the Resource Dimensions of Civil War* (pp. 185-206). Boulder, Colorado: Lynne Rienner Publishers.