Freedom from Liability

A study of rebel financing through natural resources and its impact on sexual violence against civilians

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Bachelor Thesis
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Uppsala University, 2018
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Abstract

The scholarly field on rebel use of sexual violence in armed conflict is divided. While some scholars argue that it principally occurs as a conscious strategy, a weapon of war, others argue that it is primarily a consequence of asymmetrical gender power relations. In this paper it is argued that access to and use of natural resources as means of finance enable rebel actors to commit sexual violence against civilians. As they extract resources from external sources, their accountability to civilians decreases and the use of sexual violence is made more economically viable. To test this, a quantitative analysis of around one hundred rebel actor conflict-episodes was conducted. The results suggest a positive correlation between natural resource financing and sexual violence.

Keywords: Civilian victimisation, armed conflict, sexual violence, natural resources, accountability.
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1. Introduction

1.1. Research field and gap

Alleviating the destructive consequences of armed conflict and ensuring peaceful development in conflict-ridden regions has since long been the vision of the international community. The key focus in the field of peace and conflict has been to examine the conditions and dynamics of armed conflict, in an effort to expand our understanding of why armed conflicts erupt and how they can be avoided. The relationship dynamics at play in internal armed conflict have been given much attention by the scholarly community, in particular the relationship between state actors and rebel actors, but also civilians’ relationships to either of these. In this subfield, the relationship between rebels and civilians, with focus on the characteristics of rebel actors, is perhaps the least studied. Whereas some rebel groups interact peacefully with civilians, often in a form of symbiosis, other rebel groups actively abuse parts of the civilian population. Civilian abuse can take many forms, ranging from the beating of civilians to dismemberment, sexual mutilation and killing. The factors behind these two distinctively different types of relationships are of great interest to researchers, as an increased understanding could have far-reaching policy implications. Therefore, this study is aimed at answering the question: why do some rebel actors engage in civilian victimisation, while others do not?

To answer this question, this paper will examine the enabling effects of natural resources on civilian abuse perpetrated by rebels. In previous research, the effects of natural resource financing on state actors’ behaviour toward civilians has been examined and theoretically problematised. There exists only little scholarly literature on similar effects of natural resources on the relationships between rebel actors and civilians. It has been argued that access to external sources of financing from outside the civilian constituency is likely to decrease a rebel groups’ dependency on civilians for resources (Weinstein, 2006; Wood, 2014b). Similarly, it has been argued that sexual violence against civilians by rebel groups is more likely to occur when there is a presence of easily lootable resources (Cohen, 2013). It is with this theoretical framework that this paper will approach the research question. As there exists only limited theoretical knowledge of the potential effects natural resources might have on rebel-civilian interactions, there is much room for development. Expanding our knowledge of rebel behaviour and utilising theories previously applied mainly to state actors should provide insight into the inner workings of armed conflict. Specifically, this thesis will study how natural resource financing, as theorised by Cohen (2013) and Weinstein (2006), might affect the risk of sexual violence against civilians. While some empirical studies have previously attempted to discern this relationship, a research gap remains. Previous research has not tested the relationship between rebel financing with natural resources and sexual
violence, only its connection to one-sided violence (Wood, 2014b). Likewise, the connection between the presence of lootable resources and rape has been tested, but without including a financing mechanism or examining its effect on the broader category of sexual violence (Cohen, 2013). It is this research gap that this paper will attempt to fill, further exploring how natural resource financing by rebels is connected to sexual violence against civilians. The following subsection reviews and discusses the two fields.

1.2. Previous literature

1.2.1. Natural resources and primary commodities

The research field on natural resources and primary commodities in armed conflict is vast, with many different theoretical approaches. Some authors have discussed the significance of different types of natural resources, such as oil and diamonds, for the probability of conflict onset (Lujala, Gleditsch and Gilmore, 2005; Ross, 2006). Others have discussed the relationship between natural resources and the severity of armed conflict (e.g. Lujala, 2009; 2010), or the tendency of territorial conflict (Hunziker and Cederman, 2017; Sorens, 2011). The perhaps most widely discussed theory on natural resource abundance is the natural resource curse. Regarded as near-universal, the theory supposes that states with a heavy reliance on revenue from natural resources have a higher tendency toward weak institutions, authoritarianism and occurrence of armed conflict (Frankel, 2012). Within this framework, scholars have emphasised various aspects and relationships as the most significant ones. Collier and Hoeffler (2004) argue for the destructive implications of having high primary commodity exports. Primary commodities are easily extracted by rebels, unlike economic resources that are invested in state institutions or private industries. In a state with high primary commodity exports, incentives for launching a rebellion are therefore argued to be higher, as the possibility of extraction might be attractive to would-be rebels. A contrasting view is provided by Fearon (2005), who argues that correlation between primary exports and conflict exists mainly due to the inclusion of fuel exports, such as oil, in the category of primary exports. When examining the effect of fuel exports independently, there is a strong and significant correlation with conflict onset. Fearon argues that this might be the case since fuel exports are also strongly correlated with weak state institutions and other factors which can be argued to increase the probability of conflict outbreak. In his article on natural resources and risk of conflict, Le Billon (2001) recognises this connection between heavy reliance on natural resources and state vulnerability to armed conflict. He argues that natural resources can be directly related to armed conflict in two main ways. Firstly, high dependency on, and high lootability of,
natural resources might increase corruption, decrease efficiency and heighten the risk of budgetary mismanagement. These factors make the state vulnerable to sudden shocks and decrease their ability to maintain an effective state, thereby increasing the risk of armed conflict. Secondly, the availability of resource rents is likely to influence both rebel and state strategies during armed conflict. High potential revenues are argued to increase the feasibility of maintaining armed struggle and the prospect of individual gains. These factors may affect the probability of a transition to peace and lengthen the conflict.

A scarcely researched sub-field of natural resources in armed conflict, is the field of natural resources and civilian victimisation. While natural resources or primary commodities are sometimes used to control for one-sided violence (see Ottmann, 2017; Wood and Kathman, 2014) neither have been extensively examined as an independent explanatory variable in previous literature. In a recent article by Sarkar and Sarkar (2017), it is argued that rebels’ access or non-access to revenue-generating resources, natural resources and foreign sponsorship, affects the organisational priorities of the rebel group. The argument is that resource-wealthy groups will have less incentive to engage in social projects as they are independent from their local communities in means of financing the insurgency. Instead they will engage in military projects, which often entail a certain degree of alienation from local communities. The independence and alienation from civilians enable rebel groups to utilise one-sided violence with less discretion, as the consequences become less costly (Sarkar and Sarkar, 2017, p. 872-874).

Similarly, Wood (2014b) argues that the origin of rebel resources has a strong effect on rebels’ incentive to use one-sided violence. If rebels enjoy civilian support, incentives to use violence against civilians decrease as it would damage their ability to finance the insurgency. Conversely, if rebels rely heavily on either natural resources or foreign support they are less likely to be integrated with civilian society and have strong social support networks. Therefore, Wood (2014b, p. 468) argues that socially integrated groups have less incentives for and higher constraints against using violence against civilians. On the other hand, unintegrated rebel groups that rely on natural resources or foreign sponsorship have less constraints against using one-sided violence and are likely to become more lethal as their military capabilities increase. Military capabilities held constant, rebel groups with less social integration are thus more probable to target local civilians than those who have cultivated strong popular support.

Weinstein (2005; 2006) argues that origin of rebel group resources takes two forms, economic resources and social resources. Economic resources can be derived from a wide range of sources, e.g. the extraction of natural resources or external support from a foreign sponsor. Social capital,
on the other hand, can be obtained through shared ideological, religious or ethnic identities. Groups with high economic wealth can use selective incentives to recruit fighters to the cause. Groups that lack economic resources but have a high level of social capital must rely on future rewards to recruits, promises made credible through high social wealth. Resource-wealthy groups can offer short-term rewards as the main motivation for potential recruits, while resource-poor groups rely on the promises (Weinstein, 2005, p. 601-603). In line with the theoretical reasoning by both Wood and Sarkar and Sarkar, resource-poor groups are argued to depend upon their reputation among local communities in drawing new recruits from these communities. Indiscriminate civilian victimisation is likely to damage civilian populations and consequently also damage the rebel group’s support base.

1.2.2. Sexual violence in armed conflict

Up until the last decade, the prevalence of sexual violence in armed conflict had received little scholarly attention despite its systematic use in armed conflict. For example, in the Rwandan case the use of sexual violence was widespread and systematic enough to constitute a crime against humanity under international law (Wood, 2008, p. 321). In cases such as Sierra Leone or the Democratic Republic of Congo civilians have suffered group rape, sexual slavery and sexual mutilation by both state military and rebel forces (HRW, 2014). However, the societal, communal and individual effects of sexual violence in armed conflict are largely unknown due to the novelty of the research field (Koos, 2017). In the literature on sexual violence aimed at bridging this literary gap, some credible explanations to the occurrence of sexual abuse are provided. These explanations generally follow one of four main schools of thought, to be seen as dimensions of sexual violence as they are not unequivocally mutually excluding. The first treats sexual violence as a strategic tool, utilised in armed conflict to demoralise individuals and devastate communities (Eriksson Baaz and Stern, 2013). This theoretical approach, a dominant one in the field, presumes that sexual violence is a viable strategic option to engaging in a firefight with enemy combatants. This is particularly true for non-state actors, partly because they are often less equipped to handle direct combat than state actors and partly because it has attracted less scrutiny from external actors than direct killing of civilians. Using sexual violence to deter enemy collaboration is argued to be as effective as combatant-on-combatant tactics or one-sided violence, in defeating the opponent (Kristof, 2008).

The second dimension of sexual violence sees sexual violence as a cause of contextual conditions and opportunity structures. According to this perspective, widespread sexual violence can be viewed as the cause of gendered structural inequalities. Sexual violence is not a by-product of armed conflict, as has been argued in older literature (Kristof, 2008), but is instead a form of
political violence derived from institutions and identities that promote sexual abuse. Structural
gender discrimination creates a social environment that shapes the beliefs, attitudes and values of
sexual perpetrators. In this social environment, there exists a culture of impunity for sexual vio-
ience with male perpetrators. This impunity is itself a construct of the structuralised gender dis-
crimination. These structures create uneven gender power relations and an imagery of women as
bearers of national identity. As a result, women are made both vulnerable to, and effective targets
of, sexual violence. According to this approach, strategic sexual violence would thus only be ef-
effective in a setting where gendered constructions are present (Davies and True, 2015).

The third dimension of sexual violence theory focuses on the importance of individual motiva-
tions as a driving factor. This theoretical framework identifies conditions that are connected to
personal motivation for committing sexual abuse in armed conflict. In this framework hypermas-
culinity, dire life conditions and lack of family attachment are raised as prominent factors which
increase personal motivation. These factors are argued to be exacerbated in armed conflict, cul-
tivating views and attitudes which foster sexually aggressive behaviour. Sexual violence is thus con-
sidered to emerge as an expression of the hatred and frustration caused by the conditions of
armed conflict (Koos, 2017; True, 2012).

The fourth school of thought views sexual violence as the product of intragroup norms and dy-
namics. Two main arguments are put forward in this school of thought; one relating sexual op-
portunism and the other relating to the creation of group cohesion through intragroup behaviour.
The first theoretical argument of this dimension, posits that sexual violence occurs as an effect of
a lack of norms restricting such behaviour. In this argument, the assumption is made that sexual
violence is an attractive form of personal gratification in armed conflict. If this assumption is ac-
cepted, one can argue that sexual violence is more likely to occur where constraints against com-
mittng sexual violence are weak or absent (Houge and Lohne, 2017; Meger, 2016). The second
argument theorises that sexual violence can be a strategy to increase social cohesion among fight-
ers constitutes a popular theory in the field of sexual violence. This combatant socialisation the-
ory argues that gang rape by rebel fighters can occur as a part of a strategy by the rebel leadership
attempt to form cohesion (Cohen, 2013; Checkel, 2017). By forcing groups of recruits with low
initial social cohesion to commit rape they are given an identity as part of the group. Recalling the
accounts of past rapes further acts to strengthen their bonds to one another, creating more trust
between members of the group. Interviews with former RUF-fighters have shown the im-
portance of gang sexual abuse in building social ties between rebel fighters (Cohen, 2013, p. 462).
Cohen also argues that through the accountability mechanism, high dependency on lootable re-
sources may create an environment with less constraints against committing sexual violence. As
per thoughts on sexual opportunism, less constraints should increase the viability of committing
sexual violence for individual fighters. She conducts a limited quantitative study and finds a statisti-
cally significant positive correlation between lootable resources and rape. Based on the findings,
she suggests that access to lootable resources might have a particularly corrupting influence on
rebels’ behaviour toward civilians (Cohen, 2013, p. 476).
2. Theory

2.1. Natural resources and accountability

The theoretical framework focused on in this paper is heavily based on the theorised accountability mechanism of natural resource wealth and the rentier state. The main causal argument posits that substantial extraction of revenue from natural resources will finance the state in lieu of accountability-generating forms of extraction, e.g. taxation. Revenue derived from natural resources and foreign support does not hinge upon the consent and compliance of the civilian population, fostering decisionmakers’ independence from civilian society (Ross, 1999, p. 312). Maintaining a flow of revenue extracted from civilians is dependent on civilian approval the decisionmakers’ policies and actions. Should the populace greatly disagree with actions by the recipients of their support, the support should expectedly drop. This allows the civilian population to hold the state accountable for their actions and thereby install constraints on predatory behaviour. This mechanism is the most evident in democratic societies where the civilian support is manifested in the form of votes for or against the incumbent leaders. Conversely, where decisionmakers derive their revenue from natural resources, they become independent from their local civilian population for financial support. As they become independent, so the capacity for state-building drops and constraints against state predation dissolve (Barma 2014, p. 258-260). This mechanism has been argued to also be present in the setting of rebel groups and their local communities. The more rebel groups derive their revenue from local civilians, the more they are accountable to these communities. Thus, access to natural resources may cause rebel groups to become financially independent and distanced from the grievances of local civilian communities.

The three articles by Sarkar and Sarkar (2017), Weinstein (2006) and Wood (2014b) presented in the section on previous literature are used to develop the main theory of this paper. A central theoretical framework is derived from their core reasoning, discussing the effect of rebel natural resource financing on their relationship with civilians. While the authors use different wording there is a shared idea in all articles, namely that the level of revenue that can be extracted from natural resources will likely affect their relationship with civilians. In their article, Sarkar and Sarkar (2017) propose that access to natural resources prompts rebels to adopt militaristic organisational priorities and engage in active belligerence. Militaristic priorities are argued to be incompatible with social integration and attention to local grievances. Instead, the authors argue that during heavy military campaigns, the civilian population is more likely to experience abusive behaviour. Thus, rebel groups’ lack of accountability created by the wealth from natural resources is argued to increase the likelihood of abusive behaviour (Sarkar and Sarkar, 2017, p. 873).
In the article by Wood (2014b), rebel costs of civilian victimisation and constraints against one-sided violence are exhaustively analysed and argued to be connected to the origin of rebel incomes. A higher amount of resources derived from local communities increases the costs of violence against local civilians. Constraints against civilian victimisation become imperative to maintain the stream of revenue. Where rebels derive their revenue from natural resources, constraints are less likely as the costs of victimisation are lowered. The more accountable rebels are held, due to reliance on popular support, the higher the need for effective constraints against civilian abuse. In comparison, unaccountable rebel groups without support among the local population are more likely to target civilians and inflict damage on the local population (Wood, 2014b, p. 467).

As for the article by Weinstein (2006), the focus is on the recruitment strategies available to rebel groups and how they are affected by economic wealth. As rebel leaders rely more on economic resources to gain new recruits they have less need to rely on their social capital with local communities. Economic wealth allows leaders to offer selective incentives to new recruits instead of making promises about future gains. Selective incentives, unlike future promises, do not require credibility on the part of the leader. As such, recruitment based on selective incentives does not require the rebel leader to maintain his reputation as a credible person. Thereby, the leader is less likely to impose constraints and discourage civilian abuse when not held accountable by a dependency on their reputation among local communities.

2.2. Constraints against victimisation and sexual violence

Based on the theoretical approaches to accountability discussed, it can be credibly argued that unaccountability in rebel-civilian relations has severe implications for the probability of civilian abuse. Civilian victimisation is itself a broad concept, including many forms of violence. One of the most prominent dimensions of sexual violence in armed conflict, discussed in the previous literature section, is based on the idea of sexual opportunism. According to this idea, sexual violence is expected to occur in conflict as a consequence of the conditioning of men into soldiers. The social environment of a conflict setting along with pre-existing norms on masculinity cause the individual perpetrator to commit sexual violence when possible. Thus, sexual violence against civilians is argued to occur whenever fighters are not restrained from committing it (Houge and Lohne, 2017; Meger, 2016).

As stated in the section on previous research, Cohen (2013, p. 463) argues that sexual violence could be more probable when rebel groups are highly dependent on lootable resources or foreign support. This was also substantiated through a quantitative study, finding evidence for the
proposed relationship. This connection between resources and sexual violence found by Cohen provides empirical groundwork for theory-testing. The relationship between a lack of constraints and probability of sexual abuse from the literature on sexual opportunism is coupled with the accountability mechanism from Weinstein (2005; 2006) and others. Where Weinstein argues that unaccountability may trigger rebel violence against the civilian population, Cohen proposes that such violence may involve sexual abuse. Thereby, it can be reasoned that less constraints against civilian victimisation would increase the probability of sexual violence against civilians occurring. This should be especially true for opportunistic sexual violence as means of personal gratification.

Although indiscriminate sexual violence is the focus of the theoretical argument made in this paper, not just the probability of indiscriminate sexual violence can be argued to increase with less constraints. Taking into account the combatant socialisation theory, lack of constraints against civilian victimisation due to unaccountability would render gang rape a more feasible strategy for achieving social cohesion. Such strategies may still be deemed necessary by rebel leaders, irrespective of their accountability to local civilians. However, the frequency of cases in which they are utilised should be higher when rebels are not accountable to civilians. Thus, while the main argument is that the probability of indiscriminate sexual violence should increase when there are few constraints, discriminate and strategic sexual violence may also become more feasible and probable. This points to a high utility of the accountability mechanism proposed in this paper.

2.3. Definitions, causal chain and hypothesis

Natural resource financing, is here defined as the financing of conflict through natural resources, following the definition by Rustad and Binningsbø (2012, p. 534). Natural resources can refer to high-value resources such as diamonds, but also to agricultural products or timber resources. For sexual violence, the definition used by Cohen and Nordås (2013, p. 419) and Wood (2009, p. 133) is employed here as well. Sexual violence is thus defined as “a broader category that includes rape, sexual torture and mutilation, sexual slavery, enforced prostitution, enforced sterilization, and forced pregnancy”.

The causal idea of this paper is it that the occurrence of natural resource financing by rebels affects the probability of rebels’ sexual violence against civilians. Should rebels have access to an external source of financing, such as natural resources, they would become less reliant on popular support. The less rebels are required to rely on popular support to finance their rebellion and gain recruits, the less leverage local civilians have in holding rebels accountable for their actions. The lack of accountability to local civilians should reduce the constraints imposed on rebel fighters against committing sexual abuse. Sexual opportunism being prevalent in armed conflict, a lack of
constraints should increase the likelihood of occurrences of sexual abuse against civilians. Thereby, the probability of rebels’ sexual violence against civilians is theorised to increase as a consequence of a lack of constraints. As a result, one can expect a positive relationship between rebels’ use of natural resource financing and sexual violence against civilians. This causal process is presented graphically in figure 1. A hypothesis based on the theoretical reasoning in this section is presented below.

H1: Natural resource financing by rebels increases the probability of the rebels perpetrating sexual violence against civilians.

Figure 1: Causal process
3. Research design

The aim of this study is to test the theoretical framework put forward, arguing for natural resource financing of a rebellion to be a cause of sexual violence, the role of unaccountability as part of the causal mechanism being emphasised. The study of this paper utilises a large-N quantitative design, aimed at establishing covariation. Information from the Sexual Violence in Armed Conflict (SVAC) dataset by Cohen and Nordås (2013) is used to measure the dependent variable. To measure the independent variable, information from the dataset on natural resources and conflict recurrence by Rustad and Binningsbo (2012) is used. Since both variables are binary, the method of logistic regression is used in this study. This method allows a researcher to estimate the log odds of a binary response. This can be substantively useful since the output of this regression can then be translated to examine the odds of Y equalling 1 when X equals 1. To this end, a new dataset was constructed by extracting variables from both the SVAC and the Rustad and Binningsbo dataset. For the sake of clarity, the new dataset used for the analysis in this paper will henceforth be referred to as the modified dataset. The unit of analysis in the modified dataset is “actor-episode” and consisted of 168 observations of rebel actors in a conflict episode. The observations in the modified dataset were extracted by cross-referencing all actors from the Rustad and Binningsbo dataset with the SVAC dataset. When accounting for missing values on the dependent and independent variable, this sample was further reduced to 121 observations. The time-period ranges from 1989 to 2006. The modified dataset only includes conflict-periods beginning 1989-01-01 and later, so as to exclude observations where the entire conflict-episode cannot be examined.

3.1. Operationalisation of the IV

The independent variable to be examined in this study is rebel financing through natural resources. To operationalise this variable, data on natural resource financing was extracted from the Rustad and Binningsbo dataset. This dataset contains information on what rebel actors were involved in a conflict episode and whether the natural resource “financing mechanism” was present. The financing mechanism is a binary variable recording whether the actors of a conflict-episode have used natural resources as means of finance. All types of natural resources are included: oil, gas, timber, narcotics, minerals, diamonds and other gems, agricultural products, land and water. For a conflict-episode to be coded as having had the financial mechanism in the dataset, the source must supply some specific information tying the natural resources to the conflict-episode.
Furthermore, the source must specifically state that natural resources were used to finance the armed struggle (Rustad and Binningsbø, 2012, p. 536-537)

While providing significant information on rebel natural resource financing, the Rustad and Binningsbø dataset has a different unit of analysis than the one used in this study. All actors involved in a conflict-episode are grouped together and the conflict-episode as a whole receives a value of 0 or 1 on the financing mechanism variable. Since the unit of analysis in the modified dataset is actor-episode, the information in the Rustad and Binningsbø dataset had to be processed. In observations where several actors in a conflict-episode were coded as having the financing mechanism, the dataset does not specify with which of the actors the financing mechanism was present. Thus, when splitting these actors up, it cannot be discerned whether the individual actors used natural resources as means of financing. Groups of actors coded as having a financing mechanism in the Rustad and Binningsbø dataset were therefore coded as each individual actor having a financing mechanism in the modified dataset. Each actor-episode observation is coded as not having been affected by natural resource financing (0) or having had a natural resource financing mechanism (1). The issues of reliability that stem from this are further discussed in the section on validity and reliability.

3.2. Operationalisation of the DV

The dependent variable of this study is the prevalence of sexual violence against civilians in the setting of an armed conflict. The operationalisation of this variable was done through extracting information on prevalence of sexual violence by rebel actors from the SVAC dataset. The SVAC dataset provides information on the level of sexual violence committed by individual actors against victims outside their own group. In order to be recorded as having committed sexual violence, individual rebel actors must be explicitly named. Based on keywords, prevalence of sexual violence is recorded on an ordinal scale of 0-3 and a value of -99 for observations where no annual or special report was issued. A value of 0 signifies that sexual violence was not mentioned in reports and a value of 3 signifies that sexual violence was reported as “massive”, “systematic” etc. The dataset does not include a variable on whether the sexual violence was directed at civilians, enemy combatants or other out-group individuals. Furthermore, while the dataset includes variables on selection, the authors state in the SVAC codebook that this coding cannot be used to determine that sexual violence was non-random or discriminate (Cohen and Nordås, 2013). These two factors cause some issues with validity, since the phenomenon of interest is indiscriminate
sexual violence against civilians. These issues on validity are discussed further in the section on validity and reliability.

In the modified dataset, values of 1 and higher on prevalence of sexual violence from the SVAC dataset are aggregated to only take a value of 1. This causes a blunter measurement of the data on sexual violence. However, for the intents and purposes of this study, measuring the occurrence of sexual violence rather than the level of sexual violence is arguably preferable. Since sexual violence and abuse is generally underreported, the estimated number of victims should be treated conservatively (Cohen and Nordås, 2014, p. 421). Treating all occurrences and levels of sexual violence equally is a way to work around the issues of underreporting. Furthermore, measuring and distinguishing between varying levels of sexual violence does not add to the theory-testing capabilities of this study. Since the theory proposes that rebel resource financing increases likelihood of sexual violence, not the level of sexual violence, the theory can be tested regardless.

In the modified dataset, the dependent variable is measured by examining sexual violence prevalence in the last year of the observation’s conflict-period. This is done in an effort to establish time-order to some degree. In accordance with the theory, the sexual violence variable should be lagged to account for the process of the causal mechanism. Expectedly, rebels financing their rebellion through natural resources would sequentially decrease their dependency on the civilian population. Hence, rebel resource financing should only affect the probability of sexual violence after some time. As yearly information on rebel resource financing is not available, measuring prevalence of sexual violence in the final stages of the conflict-episode is the only way of ascertaining that sexual violence occurred as an effect of natural resource financing with the data available. Thus, each actor-episode observation in the modified dataset is coded as having experienced sexual violence (1) if the actor has a value of 1 to 3 in the SVAC dataset for the last year of the conflict episode. Conversely, observations are coded as not having experienced sexual violence (0) if the actor has a value of 0 in the SVAC dataset for the last year of the conflict period.

3.3. Control variables

3.3.1. Gender Inequality

One theoretical approach to the cause of sexual violence views gender inequality as a driving factor for the prevalence of sexual violence (Koos, 2017). Following Amin and Sabermahani (2017), gender inequality is defined in this paper as “unequal distribution of wealth, power and benefits among women and men”. The Gender Inequality Index (GII) by the UNDP is used to operationalise gender inequality. It measures inequality in three key aspects of human development;
reproductive health, empowerment and economic status. Reproductive health is measured by maternal mortality ratio and adolescent birth rates. Empowerment is measured by proportion of parliamentary seats held by females and proportion of adult males and females aged 25 and more with secondary education. Economic status is measured by labour force participation rate of males and females aged 15 and more (UNDP, 2017). The index ranges from 0, where there is complete equality among females and males, to 1, where one gender has the lowest possible score in all measured aspects. The index includes observations from 1995, 1997, 2000, 2005 and later. In the modified dataset, observations are assigned country-level GII values from the temporally closest GII observation. For observations where country-level data is not available the score “NA” is assigned.

3.3.2. Battlefield costs
In previous literature, rebel battlefield costs have been discussed as a possible aggravating factor on the frequency of civilian victimisation (see Eck and Hultman, 2007; Wood, 2014a). It is reasoned that one-sided violence, used as a strategic weapon, should be more frequent in situations where other contentious tactics are unable to secure a military victory. Suffering a loss of military capabilities due to battlefield casualties is argued to increase the probability of rebels employing alternative strategies. A rebel actor, which has not previously engaged in violence against civilians, might therefore utilise this tactic when facing heavy losses (Hultman, 2007). This theoretical argument is related to the dimension of sexual violence studies which views sexual violence as a weapon of war. If sexual violence can be viewed as a weapon of war, utilised to enforce civilian collaboration and inflict costs upon the enemy, it should arguably be an alternative strategy comparable to one-sided violence. Furthermore, battlefield costs have been argued to shrink rebels’ time horizons and cause them to discount the future. Battlefield costs and high discount rates would lead rebels to prioritise short-term strategic objectives, such as attaining resources, rather than long-term investments (Wood, 2014a, p. 982). Conceivably, this should increase the likelihood of rebel extraction from natural resources, as it is a lucrative source of wealth for both the group and the individual fighters. Thus, battlefield costs could provide an alternative explanation to the variation in both the dependent and independent variable. Battlefield costs is defined as battle-related deaths inflicted on the rebel actor. However, due to aggregation of conflict data it is difficult determine the number of casualties for each actor. Therefore, this control variable is operationalised through measuring the proportion of reported battle-related deaths in a dyad between the state and a rebel actor relative to the country population. In order to capture the relative change in battlefield costs, this data was transformed to the natural log of the data. To control for time-order, this variable is lagged one year from the last year of each actor-episode.
observation. For observations where the total conflict-period only lasted one year, that year is used. For observations where the intended year had no casualties, a value of NA was assigned. Data on dyad casualties was gathered from the Uppsala Conflict Data Program, using the best estimate of battle-related deaths (Allansson et al., 2017). Data on country population is gathered from the World Bank (World Bank, n.d.).

3.3.3. Additional control variables

The prevalence of previous sexual violence is included as a control variable in this study. Since previous occurrences of sexual violence should correlate with repeated occurrences of sexual violence, this variable may have an effect on the dependent variable. In the modified dataset, each observation was coded as having had previous sexual violence (1) or as not having had previous sexual violence (0), depending on whether there was sexual violence reported in any previous year of the conflict episode. Data was extracted from the SVAC dataset and where data was not available, observations were assigned the value “NA”.

The type of incompatibility of the conflict was also included as a control variable in this study, since it has been proposed in previous literature that this may be an important factor (Eck and Hultman, 2007). Arguably, striving to achieve some form of territorial independence may affect the viability of sexual violence as the rebels should be heavily accountable to the civilian population they would potentially govern over. Also, belligerent parties in territorial conflicts are often separated along ethnic lines, increasing the likelihood that the contested territory is relatively homogeneous. In-group civilian victimisation is less likely due to sanction mechanisms, formed from shared identity (Ottmann, 2015, p. 33). In the modified dataset, each observation is coded as being a conflict over government (0) or a conflict over territory (1). The data was extracted from the SVAC dataset.

3.4. Data and source criticism

The raw data used for the operationalisation of the independent, dependent and control variables originates from four sources; the Rustad and Binningsbø dataset, the Sexual Violence in Armed Conflict dataset, the Uppsala Conflict Data Program and the Gender Inequality Index. Aside from the modifications explained under the subsections on the independent and dependent variable, the data extracted from these sources was not altered. These datasets are considered to be of high quality and the information within to be accurate within the parameters set for each dataset. While being the most forthcoming datasets available in their respective fields, these datasets are all dependent on secondary and tertiary sources and as such they contain certain biases. Data
from both the UCDP and the SVAC dataset can be adversely affected by a lack of news reports. News reporting in conflict regions is subject to a greater risk of underreporting due to the chaotic and dangerous nature of armed conflict and as stated previously underreporting is particularly common for sexual violence.

Aside from the intrinsic complications of using quantitative data, two obstacles were encountered in the data collection process. The first was encountered in the SVAC dataset, which is reliant on annual reports of sexual violence issued by three different organisations, with each recording varying levels of sexual violence. For this study, only the data from Amnesty International was used for the operationalisation of the dependent variable. While the US State Department and Human Rights Watch are undoubtedly comparably reliable sources, Amnesty International was assessed as the most unbiased and comprehensive. Human Rights Watch had a significantly higher number of observations with missing values and using this data would have considerably reduced the number of observations in the modified dataset. The US State Department had the least number of missing values, but since it is a governmental organisation it is arguably more likely to be subject to political bias. The second obstacle was encountered in the Rustad and Binningsbø dataset. When coding natural resource financing, each subsequent conflict-episode was coded the same as the previous episode. According to the authors, the presence of a financing mechanism in a previous conflict-episode is assumed to have a spill-over effect on subsequent episodes (Rustad and Binningsbø, 2012, p. 537-538). This may be an accurate assumption for observations where evidence of natural resource financing has been found in previous episodes. However, the authors do not state the coding strategy for observations with missing values or values of 0. Should these observations be subject to the same coding rules, subsequent conflict episodes would be assigned values based on evidence from previous episodes, regardless of potential new evidence. Unfortunately, as this issue could not have been overcome without having to use a different dataset, this leads to some measurement bias.

3.5. Validity and reliability

The indicators used for the operationalisations of this study were chosen based on their closeness to the theoretical concepts and their degree of quantifiability. As for the validity, there exists some bias in this study. There exists little large-scale data on natural resource financing and the almost exclusively used dataset is the dataset by Rustad and Binningsbø. It would have been preferable to use a dataset with the same unit of analysis as this study, as the theory and data could have matched better. By altering the Rustad and Binningsbø dataset to fit an actor-episode unit of
analysis, the data could be used to construct an indicator of natural resource financing. But in using country-level data to measure actor-level phenomena, the validity of the operationalisation is lowered. For the dependent variable, the data on sexual violence prevalence used for the operationalisation does not perfectly match its corresponding theory either. The SVAC dataset includes sexual violence against both civilians and enemy combatants, while the theoretical phenomenon intended to measure was sexual violence against civilians. While it is probable that sexual violence against civilians constitutes the majority of the reports used for the SVAC dataset, it cannot be assumed with certainty and thereby the validity is lowered. Also, the theoretical argument differentiates between indiscriminate and discriminate sexual violence, arguing that indiscriminate violence is particularly more probable when there exists rebel natural resource financing. Consequently, it would be preferable to measure indiscriminate sexual violence when testing this theory. As the SVAC dataset cannot distinguish between the two forms of sexual violence, an indicator derived from the dataset is incapable of capturing the intended concept. However, since the theoretical argument posits natural resource financing should increase the probability of both forms of violence, the indicator still has sufficiently high validity. As for reliability, the sources of all data as well as the process of creating the modified dataset have been thoroughly presented throughout the research design section. The data for the main variables and control variables is highly quantifiable and reliable. Thus, given the level of transparency, replicating this study should provide a researcher with the same results that are presented in this study.

3.6. Scope and limitations

The primary limitations of this study stems from the datasets used for the independent and dependent variables. Using an indicator of sexual violence that is not perfectly matched with the theory presented in this paper, makes the theoretical implications one can draw from the findings limited. Furthermore, the time-period of the study is narrowed to 1989-2006 due to availability of data and this affects the generalisability of the findings. By only examining conflicts up until 2006, a lower number of observations can be included in the modified dataset than if all conflicts up until 2017 had been examined. After omitting missing values on the dependent and independent variable, merely 121 observations remained. A lower number of observations causes the findings to become less representative of the greater population. Thus, less inference can be drawn between the sample and the population. With a low sample size, the regression model also becomes less confident. While the sample of this study is significantly large to conduct a statistical analysis, it is important acknowledge that the inference that can be drawn may be limited.
4. Findings and analysis

4.1. Results

This study is aimed at discerning the relationship between natural resource financing and rebel sexual violence, through conducting a logistic regression analysis. Before presenting the results of the logistic regression, some descriptive statistics are presented in Table 1. The table includes statistics of the dependent, independent and the control variables. There a few interesting remarks that can be made after examining Table 1. Firstly, it is relevant to note that both of the two main variables, Sexual violence and Natural resource financing, have a low mean value. Since they are both dichotomous and have mean values of 0.041 and 0.19 respectively, it can be deduced that the distribution is somewhat skewed. Given the low number of observations, this could impact the power of the regression analysis. In contrast, the control variables Gender inequality and Battlefield costs appear to have a more even distribution as the mean is centred at the middle of the range between the minimum and maximum values. Secondly, due to a high number of missing values for both Gender inequality and Battlefield costs, the sample size in these models is lowered. This affects the confidence of regression models including either or both of these variables is lowered and thus the inference that can be drawn from those models.

Table 1: Summary statistics for selected variables

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual violence</td>
<td>121</td>
<td>0.041</td>
<td>0.200</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Natural resource financing</td>
<td>121</td>
<td>0.190</td>
<td>0.394</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Gender Inequality</td>
<td>103</td>
<td>0.565</td>
<td>0.160</td>
<td>0.160</td>
<td>0.831</td>
</tr>
<tr>
<td>Battlefield costs</td>
<td>106</td>
<td>-12.225</td>
<td>2.411</td>
<td>-18.272</td>
<td>-6.918</td>
</tr>
<tr>
<td>Territorial conflict</td>
<td>121</td>
<td>0.512</td>
<td>0.502</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Previous sexual violence</td>
<td>120</td>
<td>0.067</td>
<td>0.250</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Now turning to the main analysis of this paper. The independent variable and the control variables presented in Table 1 were analysed in several logistic regression models. Compiled in Table 2 are the six models that hold the most theoretical and analytical relevance.

The first model presents the results of a bivariate regression, measuring only the effect of the independent variable on the dependent variable. In this model, the Natural resource financing is positively correlated with sexual violence. In regression, a positive correlation signifies that higher values on the independent variable are associated with higher values on the dependent variable. For logistic regression with two binary variables, a positive correlation indicates that the dependent variable is likely to have a value of 1 when the independent variable has a value of 1.
Table 2: Sexual violence in armed conflict: Logistic regression results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Regression models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Natural resource financing</td>
<td>2.0**</td>
</tr>
<tr>
<td></td>
<td>(0.9)</td>
</tr>
<tr>
<td>Gender Inequality</td>
<td>-0.03</td>
</tr>
<tr>
<td></td>
<td>(4.1)</td>
</tr>
<tr>
<td>Battlefield costs</td>
<td>1.6**</td>
</tr>
<tr>
<td></td>
<td>(0.7)</td>
</tr>
<tr>
<td>Territorial conflict</td>
<td>-2.7</td>
</tr>
<tr>
<td></td>
<td>(3.3)</td>
</tr>
<tr>
<td>Previous sexual violence</td>
<td>103.1</td>
</tr>
<tr>
<td></td>
<td>(56,017.6)</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.9***</td>
</tr>
<tr>
<td></td>
<td>(0.7)</td>
</tr>
<tr>
<td>Observations</td>
<td>121</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>-18.7</td>
</tr>
<tr>
<td>Akaike Inf. Crit.</td>
<td>41.3</td>
</tr>
</tbody>
</table>

Note: The results were generated in the software RStudio. Figures are coefficients with standard errors in parentheses. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

In this model, natural resource financing has a coefficient of 2.0, the substantive effect of which will be discussed in the following section. As for statistical significance, the typical significance level used in quantitative studies is 0.05. As indicated by the asterisk beside the coefficient, Natural resource financing has a p-value lower than 0.05. With a lower p-value than 0.05, the variable holds statistical significance at the 95% confidence level. This means that the measured effect in the sample is representative of the effect in the population, to a certainty of at least 95%.

In model 2 the control variable Gender inequality is introduced alongside Natural resource financing. In this model, Natural resource financing remains significant and has a positive correlation with sexual violence. Gender inequality is negatively correlated with sexual violence, implying that as gender inequality increases, the probability of sexual violence decreases. However, the control variable has a very high standard error in relation to the regression coefficient and does not hold statistical significance. Moving on to model 3, Battlefield costs is included along with the independent variable. Both Natural resource financing and Battlefield costs are positively correlated with sexual violence and statistically significant with a p-value of less than 0.05. In model 4, both Gender inequality and Battlefield costs are controlled for. In this model, Gender inequality maintains a negative correlation and
does not hold statistical significance. Here, both Natural resource financing and Battlefield costs are still positively correlated with sexual violence. However, Battlefield costs remains statistically significant at the 95% confidence level while Natural resource financing received a higher p-value than in previous models, now only statistically significant at the 90% confidence level. In model 5, the control variable Territorial conflict is introduced and controlled for alongside the previously introduced control variables. Territorial conflict is negatively correlated with sexual violence but does not hold statistical significance. As for the other variables, Natural resource financing and Battlefield costs remain positively correlated and hold the same levels of statistical significance as in model 4. Gender inequality is still negatively correlated and not statistically significant.

Model 6 features all four control variables and the independent variable. Here, Natural resource financing and Battlefield costs are positively correlated with sexual violence while Gender inequality and Territorial conflict are negatively correlated, as in model 5. The new control variable Previous sexual violence is positively correlated with sexual violence. Interestingly, none of the variables in model 6 hold statistical significance and all variables have standard errors much greater than their respective regression coefficients. Seemingly, the introduction of the control variable Previous sexual violence greatly affected the reliability of the regression analysis. This may be due to a correlation between Previous sexual violence and sexual violence sufficiently strong to muddle the relationships between the other variables and sexual violence. A bivariate regression was run with Previous sexual violence against sexual violence to determine their relationship. Model 7 measures the relationship between Previous sexual violence and the dependent variable. The results are presented in Table 3.

Table 3: Bivariate regression of sexual violence and previous sexual violence

<table>
<thead>
<tr>
<th>Model 7</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous sexual violence</td>
<td>4.7***</td>
<td>(1.2)</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.7***</td>
<td>(1.0)</td>
</tr>
<tr>
<td>Observations</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td></td>
<td>-11.3</td>
</tr>
<tr>
<td>Akaike Inf. Crit.</td>
<td></td>
<td>26.5</td>
</tr>
</tbody>
</table>

Note: The results were generated in the software RStudio. Figures are coefficients with standard errors in parentheses. Statistical significance: ‘p<0.1; “p<0.05; ***p<0.01.

In table 3, Previous sexual violence is both positively correlated with sexual violence and statistically significant with a p-value lower than 0.01. This implies that previous experience of sexual violence is associated with a higher probability of sexual violence. The potential effect this relationship might have had on the results of model 6 are further discussed in the following section.
4.2. Interpretation of results

Based on the results in models 1-5, there seems to be an apparent correlation between natural resource financing and sexual violence. Throughout all these models, natural resource financing has a positive correlation and holds statistical significance. This result is made more reliable when the prevalence of gender-based power structures, battlefield dynamics and type of incompatibility are controlled for. In model 1, the regression coefficient for Natural resource financing was 2.0, meaning that the log odds of this variable were 2.0. The log odds can be translated to a substantive effect through converting the log odds to odds and probability. Through taking $e$ to the power of 2.0 the log odds are converted to the odds of Y equalling 1 when the value of X is 1. When doing this the result is 7.39, meaning that for model 1 the odds are approximately 7:1 that sexual violence occurs when there is natural resource financing present. Translated to probability, the likelihood of Y equalling 1 when X equals 1 is approximately 88%. This indicates that Natural resource financing is correlated with sexual violence to a very high degree. However, seeing as this is an almost implausible strong correlation, the substantive effect is worthy of some scrutiny. In model 4, the coefficient is 9.6 and still holds statistical significance. Translated into probability, a coefficient of 9.6 indicates a 99.9% probability of sexual violence if a natural resource financing mechanism is present. However, model 4 only controls for gender inequality and rebel battlefield costs. Seeing as there should be factors not included in this regression that also cause variation in sexual violence, it is highly unlikely that the substantive effect measured is accurate. More likely is that the data used is too limited, e.g. its validity or the number of observations, to calculate any real-world effects from the coefficients seen in the results. Thereby, the potential substantive effects of this study are not investigated further. While the power of the effect cannot be ascertained, the positive correlation and statistical significance are still noteworthy. These results provide evidence of the theorised relationship between natural resource financing and sexual violence. As was proposed in H1, natural resource financing by rebels seemingly increases the probability of rebels perpetrating sexual violence.

Aside from the positive correlation between natural resource financing and sexual violence that was observed, the results of the control variable Battlefield costs were also noteworthy. In models 3-5 it can be observed that rebel battlefield costs are positively correlated with sexual violence and the control variable is statistically significant at the 95% confidence level. As was argued in the sub-section on control variables, battlefield dynamics may have implications on both the prevalence of sexual violence and the occurrence of natural resource financing. These results seem to substantiate this theoretical argument as the variable maintains a high statistical significance throughout models 3-5 despite introducing two other control variables. Based on the results in
model 6 and 7, previous sexual violence appears to impact the probability of future sexual violence. The results in model 7 displayed a correlation between previous sexual violence and sexual violence with high statistical significance. While this may be a consequence of the limitations of the research design in this study, the relationship is plausible. The structures and conditions that enabled either the fighters to commit sexual violence for personal gratification or the leaders to utilise strategic sexual violence are conceivably likely to remain throughout a conflict-episode. Furthermore, as rebels are likely to have already faced any reputational costs from committing sexual violence, further use of sexual violence is unlikely to increase costs beyond acceptable levels. Therefore, the probability of sexual violence occurring when there has been previous sexual violence is theoretically credible.

4.3. Potential objections and alternative explanations
There are some relevant objections that can be made regarding the results of the regression results. While the results point to a certain relationship, the limitations of the research design infract on the accuracy of the results. Firstly, the modified dataset used for the regression analysis is flawed by nature. The low number of observations in the sample may reduce the strength of the analysis through being less representative of the population, assuming that the population is substantially larger than the sample. More importantly, the operationalisation of the independent variable causes a blunt measurement of the independent variable. As there is no annual data available on rebel natural resource financing, time-order cannot be established. This impacts the level of inference that can be drawn. Yet, the data used for this study is the most disaggregated data obtainable. Furthermore, the time- and resource-constraints prohibited the collection of original data on natural resource financing. Thus, the data, while being imperfect, is the most favourable data that is available.

Secondly, the operationalisation of the control variable previous sexual violence is also flawed. Previous sexual violence was measured through whether there had occurred sexual violence previously in the conflict episode. This allows an observation where there was sexual violence in the first and last year of the episode to be recorded as having had previous sexual violence despite being separated by several years. The proposed theoretical explanation for sexual violence begetting sexual violence might in these circumstances be less than accurate. Thirdly, the control variable gender inequality was measured to have a negative effect on the probability of sexual violence. As it was not statistically significant, however, it might be that there is an incoherent relationship rather than a negative. Regardless, it is theoretically implausible that asymmetrical and gendered
power structures would not be positively correlated with sexual violence. An alternative explanation for this result might then be flawed measurement of sexual violence or an insufficient amount of observations. Disparity between women and men in society has caused and still causes structural oppression, and a majority of sexual violence is committed against women. Conceivably, gender inequality should be associated to a higher probability of, or more widespread use of, sexual violence. Considering the possibility of an aggravating effect of gender inequality on already existing causes of sexual violence, accounting for different levels of sexual violence prevalence might have generated different results. It is of course also possible that there in fact is an incoherent or negative association between gender inequality and sexual violence. This would contradict much of the previous literature on sexual violence. If the results of this regression analysis are accurate, extensive testing on theory nearly held as fact is required.
5. Summary and conclusions

The purpose of this study has been to examine the effect of natural resource financing on the probability of rebel-perpetrated sexual violence. It was theorised that financing through an external source, such as natural resources, would decrease the rebel actor’s dependency on local civilians for support. As they become less reliant on civilians, they also become less accountable toward the civilian population, decreasing constraints against civilian abuse. Due to the prevalence of sexual opportunism in armed conflict, it was argued that less constraints would increase the probability of sexual violence against civilians. This relationship was tested empirically through logistic regression analyses on around one hundred observations. The results showed a positive and statistically significant correlation between natural resource financing and sexual violence. This evidence substantiates the theorised relationship between the two phenomena. A positive and statistically significant correlation was also found between battlefield costs and sexual violence. This result indicates that as rebels face losses on the battlefield, the probability of them perpetrating sexual violence increases.

This thesis has succeeded in providing insight into the relationship between natural resources and sexual violence. The question it aimed to answer was why some rebels engage in civilian victimisation while others do not. In attempting to answer this question, a comprehensive literary review of the most relevant articles related to natural resource financing and civilian victimisation was presented. Furthermore, a comprehensive theoretical argument concerning a previously understudied causal process was developed. Combining theory on natural resource financing and accountability with theory on sexual violence has yielded a theoretical precedent and a model that can be further developed in future scholarly research. This thesis also provided empirical findings supporting the proposed causal argument. These findings establish the relevance of further investigation into the relationship between these phenomena. In all, while more scholarly work is needed to provide comprehensive explanations to the research question, the thesis succeeds in offering a plausible explanation for the varying levels of rebel sexual violence in armed conflict. Certainly, more research is needed on the causes of sexual violence, but further pursuing the theoretical avenue examined in this paper may prove rewarding for the scholarly field of sexual violence in armed conflict.
6. Bibliography


