

Natural Resource Exploitation and Sexual Violence by Rebel Groups¹

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Conflict-related sexual violence (CRSV) has long been viewed as an unavoidable consequence of war, but research shows that such violence varies considerably from conflict to conflict (Wood, 2006; Berdal et al., 2017). A central research question is the extent to which commanders “order, tolerate or prohibit rape” by their troops (Wood and Cohen, 2015). Commanders may order subordinates to engage in such acts to coerce or punish the civilian population, as sexual violence can have an especially demoralizing effect and raise the costs of dissent (Leiby, 2009). Leaders of armed groups may tolerate sexual violence to manufacture “social cohesion” among members (Cohen, 2013). When rebel groups use forcible means to recruit troops, social cohesion is typically low and leaders seek ways to build bonds among soldiers (Gates, 2002). Consistent with this, Cohen (2013) finds that rebels who rely on abduction to staff their ranks engage in higher levels of rape.

Rebels also may have strategic reasons for discouraging sexual violence by their soldiers. Rebels that seek to govern a civilian population, for example, may restrain sexual violence when they are dependent upon civilians for support, material or otherwise (Wood, 2006). This reasoning is similar to that of Weinstein (2007), who theorizes that rebels without economic endowments such as natural resource wealth must be careful to maintain the support of the local population. In addition, groups with greater economic endowments attract more “opportunistic” recruits, who may not be fully committed to group goals and can be more difficult for leaders to control (Weinstein, 2007). The capacity of armed groups for restraint varies at least as significantly as their incentives to restrain (Hoover Green, 2016).

Existing research thus suggests that economic endowments can reduce rebel groups’ incentives and capacity to exercise restraint over CRSV by their members. We theorize it is not economic endowments *per se*, but the manner in which rebel groups exploit such endowments, that influences their proclivity to restrain sexual violence. Different methods of profiting from resources—in particular, extortion and smuggling—have distinct effects on rebels’ reliance on non-combatants and thus their incentives to exercise restraint. We test this argument with new data that measures both if and how rebels profit from natural resources.

Extortion versus Smuggling: Incentives to Restrain Sexual Violence

Rebels that engage in extortion use violence or the threat of violence against producers of valuable resources to obtain a share of the income they generate (Gambetta, 1996; Lotspeich, 1997). Extortion requires the ability to threaten the physical security of producers or their assets. Extortion of oil production facilities, for instance, may require taking the facility by force and overseeing production, as was the case with Al Qaeda in Iraq during the later years of the Iraq War. Alternatively, extortion may involve allowing production to continue uninterrupted in exchange for payment. The Ejercito de Liberacion Nacional (ELN) used this strategy to earn millions of dollars annually from oil companies in Colombia (Offstein, 2003; Ross, 2012). Extortion is most effective against point resources (Le Billon, 2012) such as mines, drug cultivation areas, or oil wells, since the producers have few opportunities to exit the coercive relationship (Hirschman, 1970).¹ This means that rebels who engage in extortion do not need to offer many benefits to producers or the broader civilian population. They also do not need to worry about human rights abuses by their soldiers because such abuses do not fundamentally threaten their ability to profit from natural resources. In such cases, rebel commanders have less incentive to restrain sexual violence by their soldiers. This leads to our first hypothesis: rebel groups that extort natural resource production commit more acts of CRSV than rebels that do not extort.

Rebels' specialization in the use of force can also make them valuable participants in smuggling networks, as they can punish rivals, control key pieces of territory such as border crossings, and protect goods in transit. For our purposes, there are two key differences between extortion and smuggling. First, smuggling involves working with a more diverse set of collaborators, including resource refiners and processors, corrupt government officials, and transport specialists. Second, smuggling operations typically span a wider range of territory, most of which is not under the direct control of the rebel group. As with extortion, rebels may be tempted to threaten violence against their collaborators to secure a larger share of the resulting income. Such threats are less effective than they are for rebels who extort resources, however, because collaborators in smuggling

¹Note that extortion is not synonymous with profiting from lootable resources, understood as those whose production requires little input of technology or capital. As the above examples and the discussion in the appendix demonstrate, resources with low levels of lootability, such as oil, can be extorted.

have greater agency to exit the relationship. Smuggling requires a chain of linked activities from extracting and refining resources to organizing transport, bribing officials, and negotiating with buyers. If collaborators withdraw from any of these activities, the entire chain may be disrupted, reducing the rebels' profits. This also means that more collaborators are in a position to provide the authorities with intelligence about the rebels' smuggling operations. This is a powerful constraint on rebel incentives to exploit their partners, since successful counter-operations by the government rely more on obtaining intelligence about groups' activities than on traditional military capabilities (Berman, Shapiro and Felter, 2011). The larger geographic scope of smuggling operations also makes it more difficult for rebels to monitor and punish collaborators. Smuggling illicit resources requires "energy, discretion, and luck" rather than brute force (Adler, 1993).

Rebel groups involved in smuggling operations thus have incentives to restrain actions by their soldiers that could alienate collaborators. In particular, rebels that engage in smuggling should be more wary of sexual violence committed by their personnel, as such violence could jeopardize profitable smuggling routes and tactics. With a greater need to maintain the cooperation and discretion of their collaborators and broader communities, rebel groups that smuggle natural resources have incentives to monitor and punish soldiers who engage in unauthorized violence. Our second hypothesis, then, is that rebel groups that smuggle natural resources commit fewer acts of CRSV than those that do not smuggle such resources.

Why should the manner in which rebels profit from resources influence their willingness to restrain acts of CRSV specifically, but not other forms of violence such as killings and massacres? We follow Hoover Green (2016) in distinguishing between violence that is ordered and violence that is unordered. Rebel commanders often have strategic reasons to order soldiers to kill non-combatants (Wood, 2010; Kalyvas, 2006), but are less likely to have strategic reasons to order soldiers to commit opportunistic forms of violence such as rape (Hoover Green, 2016). This is not to suggest that rebel leaders do not *tolerate* sexual violence by their subordinates, as Cohen (2013) shows is especially likely among groups that rely on abduction for recruitment, and we account for this in the models below. But our theory does not speak directly to rebel decisions to *order* violence, such as killings, that may serve the strategic interests of the group. Instead, our theory identifies

how the manner in which rebels profit from natural resources shapes commanders' willingness to *restrain* unordered violence, which includes CRSV (Hoover Green, 2016).

Research Design and Data

The unit of analysis in our empirical study is the conflict dyad-year listed in the Uppsala Conflict Data Program's (UCDP) Dyadic Dataset (Harbom, Melander and Wallensteen, 2008) from 1990 to 2009 (the last year for which data are available on rebel Abduction and Forced Recruitment, described below). The dependent variable is the prevalence of conflict-related sexual violence committed by rebel groups. We rely on the Sexual Violence in Armed Conflict (SVAC) Dataset (Cohen and Nordås, 2014), which measures the following as acts of sexual violence: rape, sexual slavery, forced prostitution, forced pregnancy, sterilization/abortion, sexual mutilation, and sexual torture. We use ordinal measures of the prevalence or magnitude of sexual violence committed by the group as coded from information in U.S. State Department annual human rights reports and Human Rights Watch annual and special reports. In each case, the variable is coded as 0 if a report was issued in that specific year, but there was no mention of sexual violence. A value of 1 indicates some sexual violence, while a value of 2 indicates that several or many incidents of sexual violence were reported. The maximum value for the variable (3) captures massive sexual violence, which often is linked to its systematic use by the rebel group. In our analyses, we advance the dependent variable one year to ensure the appropriate temporal order. As this dependent variable is an ordinal measure, we estimate all models using ordinal logistic regression with robust standard errors clustered on the conflict dyad.

We rely on the Rebel Contraband Dataset (Walsh, Conrad, Whitaker and Hudak, 2018) for our two independent variables: *Extortion* and *Smuggling*. Both are dichotomous variables measuring if the rebel side of the conflict dyad earned income in a given year by extorting or smuggling one or more of over twenty natural resources (see appendix). This new dataset has important advantages for testing our hypotheses; unlike country-level or sub-national data on natural resources, such as Lujala (2010), it does not assume that rebels operating in a resource-rich country or region necessarily profit from these resources. And unlike data in Fearon (2004) and

Rustad and Binningsbø (2012), the dataset measures variation over time in rebel profiting from resources. By distinguishing between *Extortion* and *Smuggling*, these data allow us to determine not only if, but also how, rebels earn income from natural resources.

The appendix includes descriptive statistics summarizing the use of these funding streams by rebel groups worldwide from 1990 to 2009. For the observations included in our key models below, rebels engaged in *Extortion* (31 percent of observations) or *Smuggling* (29 percent of observations) with nearly equal frequency. The correlation between the two is only .25, indicating that many rebel groups that engaged in *Extortion* did not also engage in *Smuggling*.² In 45 percent of dyad-years, rebels used either *Extortion* or *Smuggling* or both. In the appendix, we also show that *Extortion* and *Smuggling* are not direct proxies for “lootability,” suggesting that the process by which groups profit from resources is distinct from the resources’ physical characteristics.

We include several controls that may influence rebel group behavior. We use two variables that Cohen (2013) tested in her analysis of rape by rebel groups: *Abduction* and *Forced Recruitment*. Both are binary and indicate whether the rebel group ever used abduction or coercive recruitment more generally to staff its ranks during the given conflict. We also include variables measuring territorial control by and external support for rebels as well as the regime type, income per capita, and population of the state against which the rebels engaged in conflict (see appendix for details).

Empirical Analysis

Table 1 summarizes our main results. The first two models use the scale of sexual violence compiled by Cohen and Nordås (2014), from Human Rights Watch annual and special reports, while Models 3 and 4 use their measure based on U.S. State Department annual reports. Model 1 tests whether any profiting from natural resources (*Extortion or Smuggling*) by rebels influences their use of CRSV. This model illustrates how such hypotheses have frequently been tested in the past, using a variable that aggregates all funding from natural resources (although even this measure goes further than previous studies by identifying whether a rebel group actually profited from resources). Cohen (2013) finds that rebel groups that earn revenue from drugs engage in more rape during civil

²See appendix for bivariate logistic regressions.

conflicts. The results from Model 1 suggest that this finding may extend to profiting from a broader range of natural resources, though the influence of *Extortion or Smuggling* is only statistically significant at the 0.10 level. Further, the coefficient for this variable is not significant in Model 3 using the U.S. State Department measure of sexual violence. There is not enough evidence, therefore, to conclude that rebel groups earning funding from natural resources are more or less likely to engage in higher levels of CRSV than groups that do not earn such funding.

In Model 2 we disaggregate natural resource funding by strategy, distinguishing between *Extortion* and *Smuggling* of natural resources. Consistent with our hypotheses, *Extortion* is significantly and positively associated with higher levels of sexual violence, while *Smuggling* is significantly and negatively related. Rebels that engage in *Extortion* are associated with the largest increase in the odds of committing higher levels of sexual violence, followed by those that engage in *Abduction*. These activities result in an increase of 524 percent and 387 percent respectively compared to groups that do not engage in these activities.³ On the other hand, the odds of a rebel group engaging in higher levels of sexual violence are 86 percent lower if the group smuggles natural resources than a comparable group that does not smuggle resources. Based on evidence in the Human Rights Watch reports, then, we find support for both of our hypotheses. In Models 3 and 4, we draw similar conclusions with SVAC data from U.S. State Department reports. Although the aggregated variable capturing all natural resource profiting shows no significant relationship with our dependent variable, the coefficients for the disaggregated *Extortion* and *Smuggling* variables are significant in the expected directions. The odds of a group engaging in higher levels of sexual violence are 286 percent higher if it extorts natural resource production and 83 percent lower if the group smuggles natural resources than if it does not engage in these activities.⁴

In the appendix, we consider alternative explanations in a series of robustness checks. It is possible that the results do not demonstrate an impact of funding strategies *per se*, but rather are tapping into broader characteristics of the rebel groups like group strength. To address this,

³These values are based on the odds ratios calculated for each model. The baseline probability of any sexual violence in the sample is 0.09.

⁴Comparing the Akaike Information Criterion (AIC) for each pair of models reveals that the disaggregated model specifications are preferred over the aggregated versions.

we include several indicators of group and leadership strength derived from the Non-State Actor dataset (Cunningham, Gleditsch and Salehyan, 2013). We control for the reliability of the data by utilizing a variable accounting for the certainty with which *Extortion* and *Smuggling* are measured. We control for broader patterns of civilian victimization by rebel groups by including an estimate of civilian deaths caused by the organization (Eck and Hultman, 2007). Finally, we check the sensitivity of our results by dropping out of our analysis specific countries that may be considered outliers on key dimensions, such as the Democratic Republic of the Congo. Across all of these analyses, as well as additional robustness checks available in the appendix, our key conclusions are unchanged.

Conclusion

In this article, we present evidence that the use of sexual violence by rebel groups is influenced by they fund their operations. Specifically, using new data from the Rebel Contraband Dataset, we find that rebel groups that generate funds through the extortion of natural resource production are more likely to engage in sexual violence than groups that do not use extortion. By contrast, rebel groups that generate funds from smuggling natural resources are less likely to engage in sexual violence than groups that do not smuggle. The use of sexual violence by rebel groups thus involves a strategic calculation based on the extent to which groups must interact with local populations in order to sustain their funding sources.

Our findings have implications for efforts aimed at limiting the commission of acts of sexual violence by non-state actors during civil wars. Influential human rights organizations and powerful states such as the United States have made this a key priority in recent years. Our results suggest that policies that limit the ability of rebel groups to profit from natural resources could influence their willingness to engage in sexual violence. Agreements that seek to identify and prohibit the sale of conflict resources could prove an effective tool in achieving this objective if they focus on groups that extort, but not necessarily those that smuggle, such resource wealth.

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Table 1: Natural Resource Exploitation and Sexual Violence

	Model 1	Model 2	Model 3	Model 4
Extortion or Smuggling	0.73* (0.44)	- -	0.31 (0.42)	- -
Extortion	- -	1.83*** (0.58)	- -	1.35*** (0.45)
Smuggling	- -	-1.98*** (0.77)	- -	-1.78*** (0.67)
Abduction	1.98*** (0.72)	1.59*** (0.50)	1.59*** (0.59)	1.41** (0.57)
Forced Recruitment	0.59 (0.90)	1.01 (0.68)	0.19 (0.61)	0.58 (0.48)
External Support	-0.19 (0.53)	-0.22 (0.47)	0.10 (0.34)	0.13 (0.34)
Territorial Control	0.92* (0.48)	0.38 (0.55)	0.95** (0.46)	0.67 (0.51)
Population	0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01* (0.01)
Democracy	-0.09* (0.05)	-0.07 (0.04)	-0.02 (0.05)	-0.01 (0.04)
Ln(GDP per capita)	-0.81*** (0.19)	-0.68*** (0.19)	-0.26** (0.13)	-0.13 (0.14)
Cut 1	-3.44 (2.12)	-2.62 (2.03)	0.34 (1.28)	1.36 (1.32)
Cut 2	-2.02 (2.16)	-1.08 (2.05)	1.59 (1.37)	2.69 (1.42)
Cut 3	-1.00 (2.22)	0.02 (2.12)	2.86 (1.58)	4.05 (1.64)
Observations	477	477	588	588

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ (two-tailed)
(Robust standard errors, clustered on conflict dyad in parentheses)