

## **Funding, Capabilities, and the Use of Child Soldiers**

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### Abstract

Recent years have seen increased scholarly attention given to the issue of child soldiering. Primarily dedicated to the decision-making calculus of rebel groups, this body of work has generally emphasized supply-side versus demand-side arguments. We contribute to this growing literature by explicitly investigating a previously untested aspect of the latter. Prior scholarship has made vague references to a potential association between economic endowments and child soldiering, including natural resource wealth, but scant empirical attention has been given. We argue that the specific type of endowment has important consequences for the decision to utilize child soldiers. We argue access to and exploitation of lootable natural resources (e.g., gemstones) to be especially likely to promote the use of child soldiers due to their ease of access, the low skills required to harness them, and the heightened likelihood that groups will become more profit-oriented. A systematic cross-national investigation of rebel groups provides robust evidence that lootable resources such as diamonds and gemstones are strongly associated with the use of children, while non-lootable resources such as oil are not.

Keywords: Child Soldiers, Civil War, Natural Resources, Rebellion, Contraband

## **Introduction**

Legendary insurgents such as Che Guevara concluded that children ‘do not have sufficient development to bear upon the work, the weather, and the suffering to which they will be subjected’ if employed as soldiers.<sup>1,2</sup> However, children are commonly used in armed conflict, with two recent independent assessments estimating that around 75-80% of civil wars see rebels systematically use child soldiers.<sup>3</sup> Given the frequency of their employment, identifying the determinants of child soldiering continues to remain an important, yet complex and elusive task. Moreover, empirical attempts to explain the use of child soldiers are still in their infancy.

Existing research has posited a number of structural factors that influence rebels’ recruitment decisions to explain where and why child soldiers might be present. Anecdotally, scholars have made vague references to the presence of valuable natural resources and the presence of child soldiers.<sup>4</sup> In Sierra Leone, for example, the Revolutionary United Front (RUF) was known for their use of child soldiers both as combatants and as diamond miners. In the Democratic Republic of the Congo (DRC), warlords have continued to employ children as laborers in the extraction of valuable minerals. However, although some studies have suggested that natural resources can influence rebels’ patterns of lethal violence against civilians, few have systematically examined how rebels’ pursuit and exploitation of such resources can impact children. This is a curious gap, as considerable literature on civilian victimization has identified natural resource exploitation as linked to patterns of rebel violence.<sup>5</sup> For example, recent work suggests that rebels’ who profit from natural resources are more likely to commit higher levels of lethal violence against civilians than those groups who do not profit from such resources.<sup>6</sup>

Consequently, our study considers the role of natural resources in rebels’ recruitment preferences, with specific attention given to rebel groups’ inclusion (or exclusion) of child soldiers.

Though providing no theoretical attention to resources, Lasley and Thyne note a 23 percent increase in the likelihood that a group employs child soldiers when they profit from illicit funding resources.<sup>7</sup> Beber and Blattman, however, find an insignificant association between the presence of natural resources and the coercive recruitment of child soldiers.<sup>8</sup> The latter specifically note that the lack of a statistical relationship might be the result of the diversity of natural resource wealth, as some resources are not as easily looted and may require cooperation with local populations.

We argue that the type of resources rebels have the opportunity to pursue has important implications for their recruitment of children. Here, we draw a distinction between lootable and non-lootable resources. Whereas the former can be found dispersed over large areas and often require little infrastructure for exploitation, non-lootables require groups to gain and maintain control over very specific territory for long periods of time and to have more advanced infrastructure. The latter, we argue, makes children less attractive than the former.

The remainder of the paper proceeds in several parts. First, we provide a brief overview of the state of the academic literature on child soldiering. The next section introduces literature on rebels' exploitation of the illicit economy and develops our main theoretical arguments. We suggest that rebels are more likely to demand children under two conditions; when natural resources are present, and are even more inclined when those resources are lootable. We then proceed to a description of the data and analyses before closing the paper with a brief commentary on the implications of the results and potential directions for future research.

## **Explaining the Use of Child Soldiers**

Recent research on child soldiering has seen a dichotomy evolve, with arguments generally cast into one of two baskets. First, supply-side arguments focus on factors exogenous to the

recruiters in the conflict, such as poverty, poor employment prospects, limited educational opportunities, high orphan rates, and the presence of refugee and internally displaced persons (IDP) camps.<sup>9</sup> While these supply-side arguments are valuable in identifying conditions under which a large pool of potential child recruits could be present, they fail to explain rebel groups' motives for choosing children over adults. High poverty and unemployment rates, for example, would similarly produce a larger supply of available adults from which to recruit.

Demand-side explanations argue the use of child soldiers is best explained by considering the characteristics of children which make them desirable recruits. Building on the economic models of civil war now prevalent in the literature, child soldiers are seen as more cost-effective and their loyalty easier to ensure.<sup>10</sup> For example, the Revolutionary Armed Forces of Colombia (FARC) paid child soldiers no salary, while child soldiers in Sierra Leone were particularly loyal to commanders with scholars suggesting this loyalty was, in part, due to children's lack of familial ties following the killing of their parents.<sup>11</sup> Other demand arguments contend that rebel groups employ child soldiers because of the proliferation of small arms and light weapon that are more easily operable and that children may actually increase a group's fighting capacity, thus lengthening insurgents' campaigns.<sup>12</sup> Meanwhile, others emphasize characteristics of the conflict, pointing to rebels being more likely to use children when international punishment is less likely or troop shortages are on the rise.<sup>13</sup> While these studies have improved our understanding of the conditions under which child soldiers are likely to be present within rebel groups, limited attention has been given to the effects of natural resources. In the following section we review relevant literature on the role of the illicit economy and move toward a theory for the link with child soldiering.

## **The Role of Natural Resources**

Reviewing classical understandings of revolt, much of the literature suggests rebels usually rely on popular support for sustaining rebellion.<sup>14</sup> However, recent scholarship has identified this largely as a myth, as rebels across the globe have illustrated a propensity to victimize civilians, thereby jeopardizing their relationships with the very people that are presumed to depend upon. Specifically, groups with sufficient economic resource streams may choose to forego collaboration with local civilians, as they are more likely to have sufficient means beyond those contributed by locals.<sup>15</sup> Below, we identify four general influences that natural resources can have on the use of child soldiers.

First, the presence of natural resources can reduce the opportunity cost of joining rebellion. While civilians may generally be unwilling to volunteer for insurgency due to the inherent risks involved, civilians could be incentivized by the promise of economic benefits. Children are no exception. Rosen notes that while children can often be thought of as victims in conflict, and justifiably so, to categorize all children in such a fashion gives no credence to their ability to make strategic and rational decisions about joining rebellions.<sup>16</sup> Interviews with former child combatants in Sierra Leone illustrate how some children consciously volunteered since joining a rebel group afforded opportunity for economic gain.<sup>17</sup> “I was told that if the rebels succeeded, Sankoh would compensate each and every one of us with money. I was happy about this. [It] gave me confidence and trust to fight with the rebels.”<sup>18</sup>

Here, it is important to clarify that such incentives can be present in the absence of the group actually controlling a resource, and that future payoffs can similarly incentivize would be insurgents. Many groups, for example, notably the RUF, begin without direct control of resources that may hold the eventual promise of profits. Though direct control of resources certainly

contributes to long-term goal pollution, discussed more below, the presence of resources alone can incentivize groups to form and individuals to join upon the promise of future gains.

Second, while the promise of economic benefits are likely to attract some recruits regardless of age, other characteristics of these rebellions can make children especially attractive. In fact, this can involve the type of adult recruits that may join due to economic incentives. Rebellions that hold the promise of economic payoffs can attract fighters that are more likely to be opportunistic. These individuals are less committed to the cause of the rebellion and more focused on tangible benefits they can receive through participation.<sup>19</sup> Due to this, many have argued that resource-rich rebellions witness a higher likelihood of civilian abuse.<sup>20</sup> Salehyan, Siroky, and Wood show that rebels with access to foreign state sponsorship are often more violent against non-combatants than those lacking such revenue streams.<sup>21</sup> Walsh et al. identify similar civilian abusing behavior for those rebels who exploit natural resources.<sup>22</sup>

The absence of such economic endowments can serve as a sort of constraint on violent behavior since the group would then rely on local support. However, the presence of alternative financial endowments will reduce constraints on group behavior and these groups are freer to prey on local civilian populations without undermining their ability to sustain the fight. Primarily viewed in previous literature in terms of civilian deaths, we argue this can extend to recruitment strategies.<sup>23</sup>

Third, the promise of economic gains can incentivize groups to adopt strategies they otherwise may have avoided if they are presumed to contribute to gaining access to those resources. A rebel group hoping to gain access to natural resources may take a broader approach to recruiting, either broadening the range of volunteers they are willing to accept or increasing their willingness

to conscript civilians they otherwise would not. For example, a group could look past cultural or normative prohibitions against the use of children if they perceive an economic payoff.

Fourth, beyond predatory behavior exhibited toward children and locals, the presence of opportunistic combatants and the promise of continued profits can corrupt long-term goals that rebel leaders may have held. In fact, the promise of financial gains can ‘shape the character’ of the rebellion itself.<sup>24</sup> For example, prior literature on the role of foreign support describes the Liberation Tigers of Tamil Eelam (LTTE) in Sri Lanka as adopting a ‘war-entrepreneur’ behavior, with the group refusing to compromise with the government even as prospects for victory were unlikely. Lucrative resources in the form of monetary support from the Tamil diaspora led the group to focus on rent maintenance with limited regard for goal achievement.<sup>25</sup> The Revolutionary Armed Forces of Colombia (FARC)’s involvement in the narcotics industry resulted in an influx in the number of criminals and opportunistic individuals within the organization who joined because of their attraction to wealth and violence.<sup>26</sup> Lujala likewise notes that rebels in Sierra Leone who were more concerned with ‘diamond mining and terrorizing civilians than with actually fighting the army.’<sup>27</sup> The RUF strategically plotted their insurgency in locations of the country with significant diamond deposits.<sup>28</sup> Reno notes that the RUF and Sankoh were especially interested in replacing old patronage networks with new ones and not with true governmental reform.<sup>29</sup> Sankoh was even quoted as saying ‘...We’re not going to give up diamonds or our guns to anybody.’<sup>30</sup> Even when Sankoh reportedly issued a suspension of mining operations in late January 2000, members of the RUF continued to engage in diamond mining. One commander claimed “If he asks us why we have not complied...we will pretend not have heard the announcement,” demonstrating how exploitation of diamonds corrupted the portions of the organization.<sup>31</sup> And despite the financial endowments of the organization, children went unpaid in

the organization, often becoming dependent on the organization upon being orphaned with the killing of their parents.

This reinforces previous arguments about the power of resources to pollute the goals of a rebellion either through the types of recruits willing to join or as a consequence of leaders' decisions about the rebellion's goals. While few insurgencies can be categorized as originating solely for the purpose of resource exploitation, numerous cases illustrate the capacity of the illicit economy to 'mutate the motivations of originally ideologically motivated insurgents.'<sup>32</sup> Under these conditions, as rebel organizations become comprised of profit-centered combatants or entangled in the illicit economy, their interactions with civilians are also likely to deteriorate. This may translate not only into rebels' use of lethal violence, but also other forms of civilian abuse. As such, we expect these groups to become more likely to use child soldiers in their insurgencies.

As the cases above illustrate, the pursuit and exploitation of natural resources can corrupt the central goal of an organization. While rebels are likely to continue the pursuit of their original mission, natural resource exploitation can shift priorities, attract disobedient and opportunistic recruits, lead to increasing levels of civilian abuse, motivate rebels to continue conflict even when opportunities for cessation arise, and even attract children who see opportunities for profit in joining. This leads to our first hypothesis:

*H1: Rebels with access to natural resource wealth will be more likely to use child soldiers.*

While our first hypothesis speaks to rebels' general access and exploitation of the illicit economy, we also suggest that the types of resources accessible to rebels matters for their recruitment preferences. Prior scholarship has investigated a number of roles for natural resources, including issues such as conflict onset, duration, intensity, and outcome.<sup>33</sup> This literature has also

drawn important distinctions regarding accessibility. For example, oil wealth has been found to carry different implications depending on whether it is located onshore or offshore, with the former increasing the risk of conflict onset and the latter showing no effect.<sup>34</sup> We consequently argue important distinctions should be made between lootable and non-lootable natural resource wealth. Lootable resources, those that are ‘easily appropriated by individuals or small groups of unskilled workers’ are expected to be more closely associated with the use of child soldiers.<sup>35</sup> While lootables might require substantial hours of labor, they generally require far less skill, infrastructure, and control of critical terrain, and they are generally easy to transport.<sup>36</sup> Thus, groups operating in states with *lootable* natural resources may see opportunities for economic gain through their acquisition and be willing to deviate from their central goal(s) in this pursuit and child soldiers might actually assist in increasing profits in these instances.

For example, the process of gathering alluvial diamonds often only requires digging through a layer of mud or gravel on a shore bank, and groups need not commit to controlling a particular piece of land. For instance, Liberians United for Reconciliation and Democracy (LURD) controlled scarce amounts of territory, but were able to profit from the exploitation of diamonds.<sup>37</sup> As the organization gained territory near Lofa Bridge and Kongo Camp—areas rife with gemstones—soldiers began sifting for alluvial diamonds and gold.<sup>38</sup> The attraction of diamonds concerned some senior officers who believed mining would detract from fighting, leading the organization to invoke a ban on diamond mining. However, this ban did little to impede individual soldiers’ efforts at profiting with at least one account noting individual commanders and fighters selling on a personal basis, with one colonel being ambushed by his own troops.<sup>39</sup> Likewise, UNITA abducted large numbers of children to work in diamond mines to help fund the rebellion.<sup>40</sup>

Non-lootables on the other hand traditionally require more upfront investment, both in terms of infrastructure and control of critical terrain. Oil, for example, requires substantial knowledge of and access to appropriate equipment required to operate an extraction and distribution enterprise. While oil generates financial resources that can be exploited by both rebels and an incumbent government to fund armed conflict, an incumbent government typically has greater access to these resources, which confers a significant advantage over rebel challengers.<sup>41</sup> Further, although profitable, non-lootables may be more costly to pursue in relation to lootables and children are unlikely to assist groups in either their acquisition of such resources or their exploitation. These resources often require the group to maintain control of territory for a much longer period of time, perhaps indefinitely and for rebellions looking for easy profit, the upfront costs may be too significant to bear compared to those groups with access to lootable resources. In addition, drug cultivation and oil extraction require groups maintain a well-defined space for substantial periods in order to produce and transport the product. The need to maintain territory has important implications for interactions with the local population. Rebels profiting from non-lootables will be more dependent on cooperation with local populations and will have a reduced incentive to conscript children or commit other actions of civilian victimization. Thus, we argue that allure of profits from easily accessible resources and the local dynamics of non-lootables will influence the recruitment of children. This leads us to our second set of hypotheses:

*H2: Lootable natural resources will result in a higher use of child soldiers than non-lootable resources.*

## **Data**

Our theory anticipates that the presence and exploitation of natural resources will be positively related to the use of child soldiers by rebel groups. We also expect differences in recruitment to arise dependent upon the general types of resources present in a state. We anticipate that groups will be more likely to use child soldiers when lootable natural resources are present as the pursuit of such resources can lead rebels to see benefit in the employment of children who can assist in the extraction process.

In testing our theory, we utilize the conflict sample from the data of Haer and Böhmelt.<sup>42</sup> This sample draws from the Non-State Actor Dataset, defining the unit of analysis as the conflict-dyad period. This results in a sample which consists of over 200 rebel groups, but there are some limitations which exist. Specifically, we are primarily concerned with traditional conceptualizations of rebellion and the Haer and Böhmelt data include dozens of events that are better described as other activities, such as military coup attempts that reached a sufficiently high casualty threshold. Further, their use of conflict dyads leads to multiple entries for the same group. We removed cases of coups, terrorism, and duplicate entries from the data. When considering available data for the independent variables, we arrived at a sample of 214 rebel groups.

Our main dependent variable, child soldier use, is a dichotomous variable coded 1 in cases where rebellions used child soldiers (<18 years) and 0 otherwise. Haer and Böhmelt draw on reports from NGOs such as Child Soldiers International, Amnesty International, and Human Rights Watch, as well as independent news outlets. Using this definition and in line with our theoretical argument, children can take on many roles within a rebel group (e.g., fighters, cooks, porters, spies, or for sexual purposes). While child soldiering is often associated with a young person bearing a weapon and participating in active combat, children, like their adult counterparts, can fill many roles within an insurgency. For those groups engaged in the illicit economy, children

can be both laborers or they can take on roles more traditionally associated with rebellions, such as combatants, spies, and lookouts.<sup>43</sup>

Our main explanatory variables are captured in several ways. First, Haer and Böhmelt include individual state-level indicators for the presence of diamonds, gems, drugs, and gas/oil, as well as an ordinal aggregate measure that counts the number of these resources that are present.<sup>44</sup> We use their ordinal aggregation of these measures and the dichotomous measure for the presence of any of the four. Though accounting for the presence of a variable in a country, the measure does not account for whether a group is actively exploiting the resource.

Second, we draw from the Rebel Contraband Dataset (RCD) to assess whether resources are actually being exploited by a rebel group.<sup>45</sup> For example, the Shan State Army (SSA) in Burma, known to be operating in an area of heavy drug-trafficking, was not known to be involved in the practice. However, its contemporaries the United Wa State Army and the Mong Tai Army were heavily engaged in the narcotics industry. The Haer and Böhmelt coding does not make this distinction, whereas the RCD only includes resources that are actually exploited. While our theory indicates the mere presence of these resources can incentivize child soldiering, distinguishing between presence and exploitation could ultimately prove to be a meaningful distinction. For example, a poor association between the Haer and Böhmelt measures and the dependent variable and a strong association between the RCD measures and the dependent variable could suggest opportunistic behavior based on the presence of resources is less important than the actual profiting from these resources. The RCD provides detailed information on rebels' exploitation of a variety of natural resources, including those available in Haer and Böhmelt's: oil, diamonds (both primary and secondary), gemstones, and drugs (opium, cannabis, and coca). We reconciled the profiting from these resources in the RCD dataset with the groups assessed in Haer and Böhmelt's sample.

Finally, we distinguish lootable resources from non-lootables.<sup>46</sup> Here we consider diamonds and other gemstones to be lootable, both with the Haer and Böhmelt and RCD data. However, the RCD data allow us the additional benefit of distinguishing between alluvial (secondary) diamond deposits and kimberlite (primary) deposits. We limit our RCD diamond measure to alluvial, as kimberlite diamonds are less accessible, require more initial investment, long term control of specific terrain, and require substantially more skill and mechanization than the harvesting of alluvial diamonds.<sup>47</sup>

We argue that drugs, sometimes considered a lootable natural resource, are more appropriately classified as a non-lootable. We argue that the cultivation of the majority of narcotics (opium and coca in particular) requires prolonged control of substantial terrain. Rebels must be able to protect areas of cultivation along with the smuggling routes used to transport such products, as governments can degrade or completely inhibit production of illicit drugs through ‘aerial spraying or other forms of eradication’ and can inhibit transport by shutting down smuggling routes.<sup>48</sup> Consequently, the ease of access and transport which are invoked as key features of lootable resources is less clear for drugs.<sup>49</sup> Lastly, we consider oil to be a non-lootable for similar reasons. Ross notes that oil is very rarely lootable, and only in cases where oil is available over vast areas and is near the surface (e.g., Iraq and Syria). Oil typically requires prolonged control over specific terrain and infrastructure, both in regard to extraction and transportation.

This is not to say that drugs, oil, or even primary diamonds are never effectively lootable. For example, UNITA benefited significantly from the exploitation of both alluvial and kimberlite diamonds, and oil during Angola’s lengthy civil war. Called the ‘lifeblood’ of UNITA, diamonds in particular served as the economic foundation of the organization, allowing for the purchase and continuous resupply of advanced weaponry and arms.<sup>50</sup> Originally exploiting existing mines and

engaging in racketeering and extortion, by 1983 UNITA chose to invest heavily in the professionalization of its diamond operations—purchasing mining equipment, training members in diamond sorting, etc. in order to exploit both alluvial and kimberlite diamond deposits.<sup>51</sup> Throughout this process, UNITA employed child soldiers both as combatants and as laborers. Between 1992 and 1998, estimates suggest that the value generated from diamond production to sit near \$3.7 billion.<sup>52</sup> While UNITA continually invoked claims to topple the Angolan government, it is clear that diamond mining became a central priority. The ease of access of these resources incentivized continued fighting and predatory behavior to ensure profit persisted as cessation would have resulted in the termination of their mining enterprise.<sup>53,54</sup>

A similar exception can be seen with the FARC in Colombia, whose exploitation of drugs became effectively lootable over time. In each of these cases, the conflict saw the rebel groups gain rather extraordinary degrees of territorial control and the government's effective acquiescence of that control. Though important cases, these are far from typical of the often far shorter-lived groups that usually have far more limited control of critical terrain.

We include a number of control variables identified in the literature relevant to rebel child soldiering. Each is drawn from the Non-State Actor Dataset (NSA), a dyadic dataset accounting for the attributes of over 200 rebel groups active in civil conflict between 1989-2010.<sup>55</sup> First, we include a measure for the degree of internal discipline within a rebel group—*strength central*—as the strength of rebels' command has been identified as a valuable indicator of civilian abuse.<sup>56</sup> Rebel *mobilization capacity* is a dichotomous measure accounting for the ability of a rebel group to mobilize popular support in relation to the government. Rebels that are successful in mobilizing larger numbers of a population relative to the government are expected to be less likely to incorporate child soldiers. *Arms procurement* is included to capture a rebel groups' ability to

procure weapons relative to the government. This variable is an ordinal measure (low, moderate, high) and controls for Singer's claim that the proliferation of weapons, particularly small arms, might make children more desirable in conflict. An alternative perspective might suggest that rebels with access to more weaponry relative to the government need not resort to child soldiering. Regardless, we control for this alternative explanation. We included an indicator for rebels' *territorial control*, a binary measure identifying whether a rebel organization controls any territory. The size of a rebel group can also impact the types of recruits present. Thus, we control for *group size*. Larger rebellions may lack the organizational structure necessary to maintain control over recruits behavior leading to the presence of child soldiers. Contrarily, groups with enough members may not need to resort to the inclusion of children. *Duration* considers the number of years a rebel group has been active in conflict with a government. Consistent with previous literature, we expect that longer conflicts are likely to see an increase in the likelihood that rebels employ child soldiers.<sup>57</sup> Lastly, we include a control for *foreign support* of a rebel group. This dichotomous measure indicates whether or not a rebel organization received support from a foreign actor (explicit or alleged). We expect foreign support to result in a deterioration in rebels' constraints on violence against civilians as indicated in previous literature.<sup>58</sup>

[Table 1 near here]

## **Analysis**

We present our main results in Table 2, which reports a logistic regression for both the Haer and Böhmelt and RCD resource data. We take an exhaustive approach to robustness checks, including utilizing additional logit models with robust standard errors clustered by country, country random effects, analogous generalized linear models, and penalized maximum

likelihood<sup>59</sup>, and rare events logits<sup>60</sup>. For each of these variations, we also include analogous models that utilize resources variables that aggregate measures by ‘lootability’ (lootable versus non-lootable).

[Table 2 near here]

In all, we considered 120 different specifications of the model. Column 1 considers the aggregate measure of access to resources which exhibits a positive and significant effect. This lends support to H1. However, further inspection reveals that non-lootable resources, whether considering oil, drugs, or the aggregated measure, invariably fail to gain statistical significance. This qualifies the degree of support for the first hypothesis, which anticipated that natural resources would generally have a positive effect on the use of child soldiers and instead points to this relationship likely being driven by lootable resources. In turn, we find quite robust evidence that lootable resources are positively associated with the use of child soldiers. In only one model (linear generalized model with country random effects) did a lootable resource fall short of statistical significance.

Our findings are illustrated in Figure 1. The figure reports the predicted probability of the use of child soldiers, according to whether a resource is (1) or is not (0) present. The top row reflects the Haer and Böhmelt resource measures, while the second row captures the RCD. Results are quite consistent between the Haer and Böhmelt and RCD data. For example, the presence of diamonds in the Haer and Böhmelt data suggest a 0.89 probability of the use of child soldiers (a significant increase over the 0.72 probability anticipated in their absence). The presence of diamonds in the RCD data leads to an increase from 0.76 to 0.90. Similar trends are seen with

other gemstones. In the Haer and Böhmelt data, the presence of gems increases the probability of child soldier use from 0.67 to 0.86, whereas exploitation of gemstones in the RCD data increases the use of child soldiers from 0.75 to 0.93. The consistency of these measures suggests that resource extraction alone might not tell the entire story of the link with child soldiering, and that the mere presence of resources can encourage their use.

As noted, we find no effect between non-lootable natural resources and child soldier usage. In fact, the predicted probabilities for child soldiers is virtually identical regardless of the presence or exploitation of oil or drugs. In all, these findings provide partial support for the first hypothesis. Lootable resources, captured here as secondary diamonds and other gemstones, are strongly associated with child soldier use.

We find only limited support for the second hypothesis, which anticipated that groups with access to lootable natural resources would be more likely to use child soldiers than groups with access to non-lootables. Given the overall probability of child soldiering was quite high, it was difficult to find a meaningful difference. However, in the Haer and Böhmelt data, we find groups operating in the presence of diamonds to be significantly more likely to use child soldiers than groups in the presence of oil. In the RCD data, we find groups in the presence of gemstones are more likely to use child soldiers than groups in the presence of drugs. Though we cannot claim lootable resources are robustly associated with more child soldier use than non-lootable resources, we can confidently suggest that the presence or exploitation of lootable resources leads to a significantly higher use of child soldiers than that seen in their absence.

## **Conclusion**

Consistent with the suggestion by Beber and Blattman<sup>61</sup> we conclude that the decision to use children is yet another way that some rebels engage in civilian targeting as a means of increasing profits. However, while insurgents who exploit the illicit economy are statistically more likely to use child soldiers, our analysis illustrates the importance of distinguishing between the types of resources rebellions profit from. We find that rebels profiting from diamonds and gemstones are more likely to have child soldiers present compared to those insurgencies lacking such access. This pattern reinforces our theoretical argument that resources contribute to rebels' recruitment decisions. While it is not a novel finding that greed-based rebellions should be more likely to victimize civilian populations, this paper does highlight important, albeit often overlooked, factors which contribute to rebel child soldiering.

More novel, we find that the type of resource matters, specifically drawing a distinction between lootable resources and non-lootables. The failure of non-lootable resources to yield a significant association suggests that ease of access and transport are important factors, not just the presence of an economic endowment. Such a finding could have important implications of the study of commodities more generally. For example, while scholars such as Collier and Hoeffler point to the important of greed in rebellion, as noted by higher levels of primary commodity exports, we suspect that easier to access and transport resources, such as gemstones, are more likely associated with greed than product such as agricultural commodities.

Aside from contributions to academia, our findings carry two important policy implications. First, and more broadly, policymakers should pay close attention to potential human rights issues when rebel groups emerge in environments that provide them access to the illicit economy. Second, more scrutiny should be given when the resources require little skill or infrastructure to secure. Knowing that rebels are more likely to use child soldiers when resources

are lootable provides opportunity to more effectively deploy human rights protections for children and vulnerable populations.

Future work should continue to explore the relationship between resource exploitation and rebel child soldiering. While our analysis speaks directly to the presence or absence of children in rebellions, scholars would do well to investigate the mode of recruitment into these organizations and whether children are violently coerced or joining voluntarily. Our reading of various cases suggests a need to parse this out as both forms of recruitment are evident. Our results also establish the foundation for further exploration of the types of resources that rebels profit from along with a need to investigate the ways in which rebels engage in the illicit economy. While protections exist to inhibit the flow of conflict diamonds, we know that rebel groups across the globe have successfully exploited other lootable resources such as copper, coltan, and manganese. Future studies should attempt to examine the lootable and non-lootable argument across a larger sample of resources.

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Table 1: Descriptive Statistics

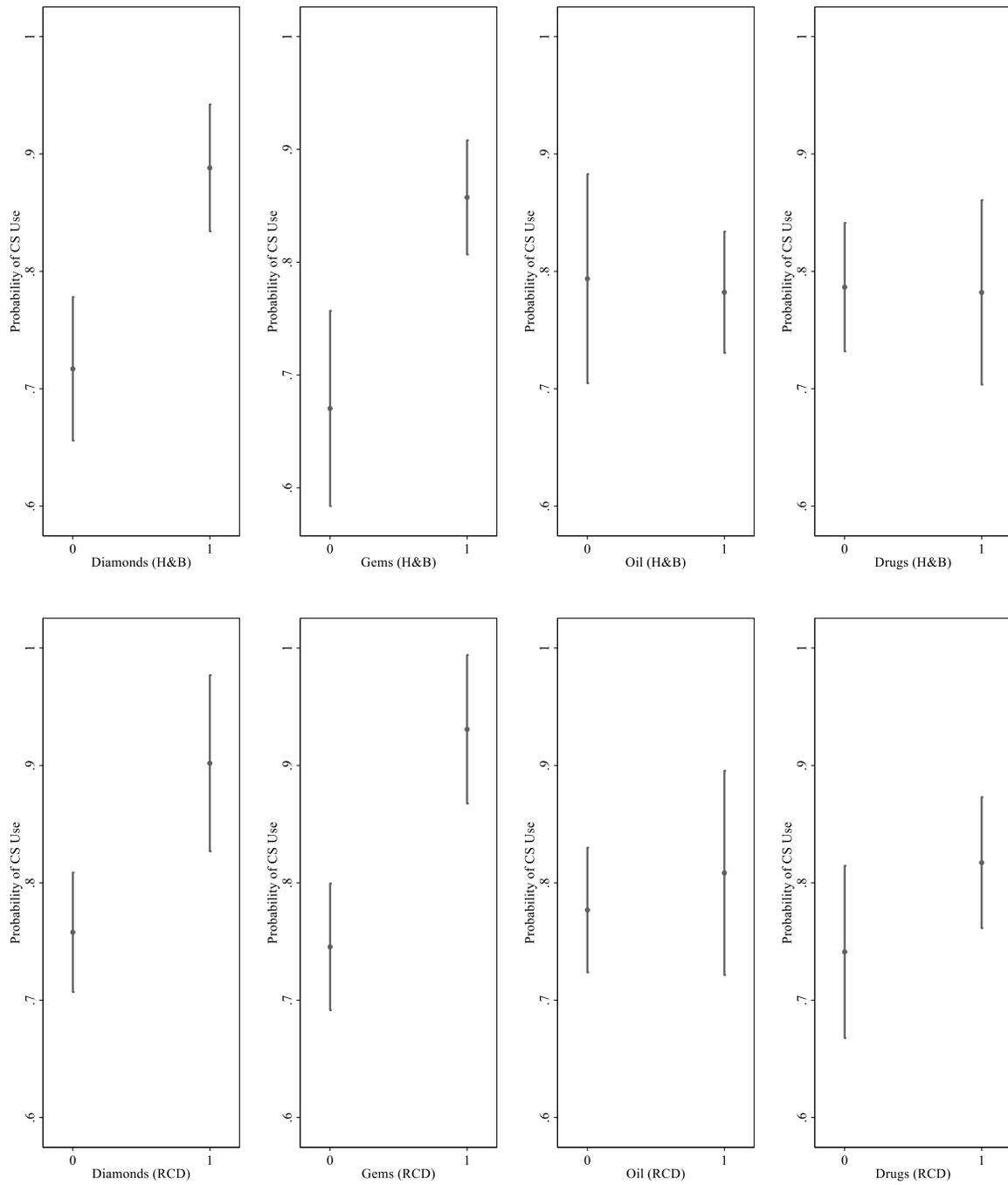
Variable	Observations	Mean	Std. Dev.	Min	Max
Child Soldiers	214	.7850467	.4117531	0	1
Resources	214	2.121495	1.135929	0	4
RCD Diamonds	214	.1635514	.3707352	0	1
H&B Diamonds	214	.364486		0	1
RCD Gems	214	.228972	.4211563	0	1
H&B Gems	214	.635514	.4824142	0	1
RCD Oil	214	.2943925	.4568378	0	1
H&B Gas/Oil	214	.7429907	.4380092	0	1
RCD Drugs	214	.5794393	.4948065	0	1
H&B Drugs	214	.3785047	.4861515	0	1
Strength Central	214	1.990654	.6782375	1	3
Mobilization Capacity	214	.4018692	.4914253	0	1
Arms Procurement	214	1.327103	.5086242	1	3
Territorial Control	214	.3925234	.4894571	0	1
Rebel Size (ln)	214	8.102	1.565967	4.60517	11.9829
Duration	214	5.233645	6.672879	0	42
Foreign Support	214	.5607477	.4974597	0	1

Table 2: Resource Endowments and the Use of Child Soldiers (Haer and Böhmelt)

Non-Clustered SEs

	H&B Resource	H&B Diamond	RCD Diamond	H&B Gems	RCD Gems	H&B Oil	RCD Oil	H&B Drugs	RCD Drugs
Resources	0.451*** (0.174)	1.260*** (0.423)	1.161** (0.579)	1.162*** (0.378)	1.606** (0.645)	-0.029 (0.379)	0.208 (0.426)	-0.075 (0.415)	0.483 (0.355)
Strength	-0.190 (0.278)	-0.129 (0.276)	-0.144 (0.272)	-0.215 (0.283)	-0.036 (0.275)	-0.150 (0.272)	-0.147 (0.272)	-0.144 (0.273)	-0.140 (0.273)
Mobilization	-0.403 (0.423)	-0.311 (0.432)	-0.458 (0.433)	-0.305 (0.429)	-0.360 (0.425)	-0.384 (0.417)	-0.357 (0.419)	-0.375 (0.421)	-0.433 (0.419)
Procurement	-0.584 (0.390)	-0.832** (0.397)	-0.670* (0.384)	-0.460 (0.402)	-0.480 (0.385)	-0.629* (0.382)	-0.578 (0.391)	-0.630* (0.381)	-0.554 (0.384)
Territory	0.941** (0.474)	0.924* (0.481)	0.794* (0.475)	0.903* (0.477)	0.928* (0.477)	0.783* (0.466)	0.745 (0.470)	0.772 (0.470)	0.814* (0.465)
Size	0.137 (0.146)	0.173 (0.144)	0.155 (0.144)	0.072 (0.148)	0.081 (0.148)	0.142 (0.140)	0.132 (0.141)	0.139 (0.141)	0.132 (0.142)
Duration	0.108** (0.048)	0.129*** (0.050)	0.122** (0.048)	0.100** (0.047)	0.114** (0.048)	0.117** (0.048)	0.117** (0.048)	0.117** (0.048)	0.117** (0.048)
Foreign Support	-0.467 (0.398)	-0.712* (0.407)	-0.679* (0.399)	-0.322 (0.409)	-0.525 (0.395)	-0.588 (0.397)	-0.577 (0.389)	-0.578 (0.390)	-0.556 (0.391)
Constant	0.164 (1.122)	0.610 (1.071)	0.905 (1.066)	0.724 (1.086)	0.794 (1.088)	1.079 (1.050)	1.016 (1.038)	1.132 (1.096)	0.747 (1.076)
Observations	214	214	214	214	214	214	214	214	214

Figure 1: Natural Resource Endowments and the Predicted Use of Child Soldiers



## Notes

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- <sup>1</sup> Guevara, *Guerrilla Warfare*, 45.
- <sup>2</sup> Guevara did, of course, use child soldiers, even acknowledging “extraordinary” children “reached the highest ranks” in his army. However, he concludes that “For every one of them who displayed great fighting qualities, there were tens who ought to have been returned to their homes, and who frequently constituted a dangerous burden for the guerrilla band” (Guevara 1998, 45).
- <sup>3</sup> Lasley and Thyne, “Secession, Legitimacy, and The Use of Child Soldiers”; Haer and Böhmelt, “The Impact of Child Soldiers”; Both studies define a child soldier as an individual below the age of 18. We follow suit and discuss this in greater detail in the data section.
- <sup>4</sup> Singer, “Talk is Cheap.”
- <sup>5</sup> Weinstein, “Resources and the Information Problem”; Walsh et al. “Funding Rebellion”; Wood, “Rebel Capability and Strategic Violence.”
- <sup>6</sup> Walsh et al., “Funding Rebellion.”
- <sup>7</sup> Lasley and Thyne, “Secession, Legitimacy, and The Use of Child Soldiers.”
- <sup>8</sup> Beber and Blattman, “The Logic of Child Soldiering.”
- <sup>9</sup> Cohn and Goodwin-Gill, *Child Soldiers*; Høisker, “Underage and Under Fire”; Gates, “Why do Children Fight?”; Achvarina and Reich, “No Place to Hide.”
- <sup>10</sup> Gates, “Recruitment and Allegiance”; Brett and Specht, *Young Soldiers*; Andvig and Gates, “Recruiting Children for Armed Conflict”; Beber and Blattman, “The Logic of Child Soldiering.”
- <sup>11</sup> Shepler, “The Social and Cultural Context.”
- <sup>12</sup> Singer, *Children at War*; Haer and Böhmelt, “The Impact of Child Soldiers”; Haer and Böhmelt, “Could Rebel Child Soldiering.”
- <sup>13</sup> Beber and Blattman, “The Logic of Child Soldiering”; Lasley and Thyne, “Secession, Legitimacy, and The Use of Child Soldiers”; Blattman and Annan, “Child Combatants in Northern Uganda”; Tynes and Early, “Governments, Rebels, and the Use.”
- <sup>14</sup> Gurr, *Why Men Rebel*.
- <sup>15</sup> Weinstein, *Inside Rebellion*; Salehyan, Siroky, and Wood, “External Rebel Sponsorship.”
- <sup>16</sup> Rosen, David. “Child Soldiers, International Humanitarian”
- <sup>17</sup> Peters and Richards. “Why We Fight.”
- <sup>18</sup> Maclure and Denov. “I Didn’t Want to Die,” pp. 124.
- <sup>19</sup> Weinstein, *Inside Rebellion*.
- <sup>20</sup> Collier, “Rebellion as a Quasi-Criminal”; Weinstein, “Resources and the Information Problem”; Weinstein, *Inside Rebellion*.
- <sup>21</sup> Salehyan, Siroky, and Wood, “External Rebel Sponsorship.”
- <sup>22</sup> Walsh et al., “Funding Rebellion.”
- <sup>23</sup> Haer, Faulkner, and Whitaker, “Rebel Funding and Child Soldiers.”
- <sup>24</sup> Weinstein, “Resources and the Information Problem,” 598.
- <sup>25</sup> Beardsley and McQuinn, “Rebel Groups as Predatory Organizations.”
- <sup>26</sup> Collier, “Natural Resources, Development and Conflict,” 324.
- <sup>27</sup> Lujala, “The Spoils of Nature,” 16.
- <sup>28</sup> Alao, “Diamonds Are Forever.”
- <sup>29</sup> Reno, “The Politics of Insurgency.”
- <sup>30</sup> *Ibid.*, 853.
- <sup>31</sup> Agence France Press, “Ex Rebel Leader, Sankoh”; Sankoh and Momodu, “Sierra Leone: Rebels Ignore.”
- <sup>32</sup> Cornell, “The Interaction of Narcotics,” 755.
- <sup>33</sup> See Ross, “What Do We Know.”
- <sup>34</sup> Lujala, “The Spoils of Nature,” 26.
- <sup>35</sup> Ross, “Oil, Drugs, and Diamonds”; Snyder, “Does Lootable Wealth Breed.”
- <sup>36</sup> Ross, “How Do Natural Resources Influence”; Snyder, “Does Lootable Wealth Breed”; Lujala, Gleditsch, and Gilmore, “A Diamond Curse?”
- <sup>37</sup> Call, “Liberia’s War Recurrence.”
- <sup>38</sup> Lidow, *Violent Order*, 196.
- <sup>39</sup> Brabazon, “Liberia: Liberians United for Reconciliation,” 6.
- <sup>40</sup> Huynh, D’Costa, and Lee-Koo. *Children and Global Conflict*, 33.

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- <sup>41</sup> Colgan, “Oil, Domestic Conflict, and Opportunities.”
- <sup>42</sup> Haer and Böhmelt, “The Impact of Child Soldiers.”
- <sup>43</sup> In the case that lootable resources are exploited, our expectations are that children can be particularly useful as laborers. However, the data on child soldier usage limits our ability to study variation in their activities in our empirical assessment. Accurate and comprehensive data on child soldiering is especially difficult to gather. For a thorough discussion of these challenges see Pedersen and Sommerfelt, “Studying Children in Armed Conflict.”
- <sup>44</sup> Haer and Böhmelt, “The Impact of Child Soldiers.”
- <sup>45</sup> Walsh et al., “Funding Rebellion.”
- <sup>46</sup> See Ross, “What Do We Know”; Snyder, “Does Lootable Wealth Breed”; Lujala, “The Spoils of Nature.”
- <sup>47</sup> According to the RCD data, no rebel groups profited from direct control of kimberlite diamond deposits. The only group profiting from such deposits did so through the theft of already-mined material.
- <sup>48</sup> Snyder, “Does Lootable Wealth Breed,” 951.
- <sup>49</sup> We note that the debate over lootable vs. non-lootable resources is a much larger discussion and cannot be fully addressed in this paper. However, our reading of numerous cases of rebel involvement in the illicit economy serves as a foundation for scholars to more fully examine the variance in lootability of a diverse set of natural resources.
- <sup>50</sup> Le Billon, “Angola’s Political Economy of War,” 68.
- <sup>51</sup> *Ibid.*, 67.
- <sup>52</sup> Global Witness, *A Rough Trade*, 4.
- <sup>53</sup> Addison, Le Billon, and Murshed, “Conflict in Africa.”
- <sup>54</sup> Humphreys, “Natural Resources, Conflict, and Conflict Resolution,” 516-517.
- <sup>55</sup> Cunningham, Gleditsch, and Salehyan. “It Takes Two.”
- <sup>56</sup> Humphreys and Weinstein. “Handling and Mishandling Civilians.”
- <sup>57</sup> Tynes and Early, “Governments, Rebels, and the Use.”
- <sup>58</sup> Weinstein, *Inside Rebellion*; Salehyan, Siroky, and Wood, “External Rebel Sponsorship.”
- <sup>59</sup> Firth, “Bias Reduction of Maximum.”
- <sup>60</sup> King and Zeng, “Logistic Regression in Rare.”
- <sup>61</sup> Beber and Blattman, “The Logic of Child Soldiering.”