

Hobbes vs. Mill: Anarchy, Development, and Demobilization in the Somalian Civil War

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One of the key problems in post-war societies is the identification of schemes that convince former combatants to hand in their weapons. Political economy models suggest that economic incentives increase the opportunity costs of fighting, while security studies rather suggest that the refusal to disarm follows from the anarchy in which the ex-soldiers have to operate. This article contrasts these two perspectives, which we trace back to the work of J. Stuart Mill and Thomas Hobbes, in a multi-level examination of more than 7000 interviews with former combatants during one of the more peaceful episodes in the Somalian civil war. The statistical analysis supports the Hobbesian worldview at the individual level of analysis, while its Millsian counterpart captures the regional influences on the disarmament decision. Personal experiences in the form of traumatisation and membership in more regular military units shape on the one hand accordingly the attitude on whether or not ex-combatant wants to give up their arms. Regional economic instability on the other hand increases the resistance towards disarmament, whereas variables, which are central for the individual level version of the opportunity cost argument like education or poverty, as well as regional insecurity and underdevelopment do not foster such tendencies. We argue that theories of civil war and demobilization should consider the level of analysis problem that our analysis uncovers.

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Introduction

Disarmament, Demobilization, and Reintegration (DDR) programs have become a routine practice in the national and international attempts to pacify post-conflict societies. According to the United Nations (2010), “DDR seeks to support ex-combatants so that they can become active participants in the peace process”. The success of these missions has a direct effect on the long-term prospects for war torn societies (Knight 2007). Currently, the UN is involved in 14 DDR programs, executing either a leading or a supportive function¹.

A key starting point of any DDR mission is the disarmament of former combatants. During this first phase, arms and ammunition are collected, documented and controlled by the peace forces (UN 2010). As the willingness of soldiers to hand in their weapons differs substantively, we need to identify the factors that increase the chance of a voluntary disarmament. Such an undertaking is, however, much more difficult than the rosy self-assessments of the DDR programs often suggest. The mismatch between the often lofty goals of this form of development aid and the more humble needs of the targeted ex-soldiers becomes apparent through a statement by a former militia member in Somalia after the conclusion of a basic skills training: “Unfortunately, now that I have skills but no job, I am afraid I have to go back to checkpoint for living” (UNDP 2004:15).

Although similar problems are widespread in development policy making, we know relative little about the success of DDR programs. The few studies that have systematically examined demobilization decisions so far have either assessed the program descriptively or focussed on individual features of the ex-combatant, showing that ideologically committed ex-fighters and economically more resourceful soldiers have more difficulties to completely break with their past in an armed group (e.g. Humphreys and Weinstein 2007). Such micro-level examinations are a welcome departure from the macro-level research designs which have dominated the study of civil conflict and the attempts to pacify war-torn societies (e.g. Doyle and Sambanis 2000). Quite often, studies in this domain calculate the risk of a country to experience war although the causal mechanisms on which they hypotheses rely were originally developed as explanations of individual behaviour. This problem becomes apparent in Collier and Hoeffler’s (2004) work on the economic motives of war in which they refer to the micro-economic theory of rebellion by Grossman (1991). However, attributing the decision to fight or, as in the case of the DDR-programs, to refuse handing in weapons solely to features of the ex-combatant fails to point out the possible impact of the social and political context on such choices. In other words, advanced research on the decision to rebel fails to consider how structural factors and the

¹ The active DDR programs in July 2010 were as part of a peacekeeping mission based in Sierra Leone (1999), the Democratic Republic of Congo (1999), Liberia (2003), Côte d’Ivoire (2004), Haiti (2004), Burundi (2004), and Sudan (2005). The UN-sponsored DDR missions without peacekeeping included the following former or current civil war locations: Aceh (Indonesia), Afghanistan, the Central African Republic, Republic of Congo, Niger, Somalia and Uganda.

incentives and disincentives stemming from them affects the individual decision to disarm or to keep the fighting possibility alive.

This problem of the current scholarship on the motivation to join armed forces in general and of the success of DDR program in particular is accompanied by the limited attention that has been paid to insecurity as a possible trigger for fighting. A rich research tradition has attributed the decision to arm or to remain armed to the anarchical situation in which individuals and collectives are living or from which they emerge. In other words, insecurity in its various manifestations at the individual level or in the community in which they fighters are living should be a major impediment to DDR initiatives.

This article tests whether the insecurity to which an ex-fighter is or has been exposed to is a stronger predictor than the economic incentive and disincentive explanations that have been *en vogue* in the literature on civil war at least since Collier and Hoeffler's (1998, 2004) seminal papers. We ascribe the anarchy explanation to Hobbes' Leviathan and similarly trace the opportunity cost arguments apparent in Grossman (1991) as well as Collier and Hoeffler (1998, 2004) to the writing of John Stuart Mill (Stigler 1955). Our empirical tests refer to a large survey that was conducted among more than 7000 ex-combatants in Somalia during one of the more peaceful periods in this war-ravaged country. The multilevel models that we employ allow us to consider the simultaneous influence of features of the ex-combatant and the region in which he or she is living on the decision of whether or not to hand in the weapons. The results lend strong support to the Hobbesian model at the individual level of analysis. Personal insecurity experiences of the ex-combatants like traumatisation and membership in regular armed units increase the resistance towards handing in the personal weapon. The Millsian opportunity cost argument, by contrast, only work at the regional level of aggregation. The results show that individuals who live in a region with high levels of economic instability are more likely to refuse the personal disarmament than fighters residing in less turbulent areas. Regional insecurity, by contrast, does not increase this tendency. We argue based on our theoretical framework and the supporting statistical analysis that theories of civil war and disarmament should be aware of the level of analysis problem. Hence, theoretical propositions should clearly separate between the preferences of a real or potential combatant and the constraints that these fighters are facing. We explain the divergence of the two theoretical models across the varying levels of analysis through the relative homogeneity in the individual economic incentives of the interviewed ex-combatants, whereas their individual biographies and therefore also their insecurity experiences differ considerably (see table 1). Furthermore, while the ex-combatants differ similarly under regional economic shocks, they are not so much concerned by fighting in their region if these exchanges remain relatively local.

Two Demobilization models

A growing body of evidence suggests that insecurity and development hang closely together. Many economists and political scientists have sought to establish whether underdevelopment increases the risk of war (e.g. Miguel et al. 2004), while another strand of research assesses the impact of violent conflict on economic growth (e.g. Murdoch and Sandler 2004).² Most recently, several researchers have demonstrated that the relationship points in both direction and that establishing the net effect of conflict on the economy and vice versa is difficult (Jensen and Gleditsch 2009), if not almost impossible theoretically in the first place (Besley and Perrson 2008, Fearon 2008). We believe that the difficulties in establishing the causal effect are not only due to econometric difficulties like finding a convincing instrumental variable, but are also conceptual. Many hypotheses that are used to test macro-level relations in conflict research are originally stated as causal mechanisms at the level of the individual who considers whether or not he should join an armed organization. A case in point is the usage of the microeconomic theory of rebellion by Grossman (1991), Haavelmo (1954) and others as the conceptual basis of studies that explore how economic incentives such as resource abundance influence the risk of war (e.g. Collier and Hoeffler 2004). However, the problem of a mismatch between the level of analysis in the theoretical argument and the empirical application is also observable in studies that rely on individual-level data and seek to establish how higher-level influences like group membership influence individual decision making. If we do not control clearly between the different levels of explanations, we run into the risk of providing biased estimates of higher-level influences (cf. Weidmann 2009).

In this article, we want to break new ground by developing a multi-level explanation of the reluctance of ex-soldiers to hand in their weapons and of estimating this model appropriately through statistical models that are able to separate between the individual effects of multiple levels of influences. Theoretically, we separate between insecurity and economic incentives as possible motives for the refusal to hand in weapons. While we dub the former framework the Hobbesian model of arming, we attribute the opportunity cost arguments developed under the umbrella of the latter approach to the writing of John Stuart Mill who has introduced this concept in the social sciences (Stigler 1955:297). To address the level-of-analysis problem in studies of civil war and disarmament, we will develop hypotheses for the Hobbesian and the opportunity cost model for a set of individual and regional factors that influence the personal decision to disarm.

² Schneider (2010) offers a recent summary of this debate.

Two models: The insight that an anarchical situation increases the risk of armament enjoys a rich tradition in international relations and comparative politics. Although the argument is theoretically incomplete (Fearon 1995), it has inspired research on arms races, balance of power politics and deterrence. Ironically, although Hobbes developed his argument in response to the insecurity experienced during the English Civil War, the proposed hierarchical solution that he proposed has hardly ever been applied to the study of internal war.

What comes closest to the Hobbesian pessimism that anarchy breeds anarchy is the growing literature on human security, which explores the conditions affecting “the survival of individuals, groups, and societies” (Paris 2001: 102). Indeed, there is evidence from survey research that individuals who have experienced insecurity in the past or who are living in violent neighbourhoods are more mistrustful and belligerent. Coletta and McCullen (2000) as well as Born (2009) show that social capital erodes as a consequence of violent conflict, and Attanayake et al. (2009) and many others show that war experiences increase the prevalence of many illnesses. Among trauma-exposed adults, several studies support the conjecture of a positive relationship between the Post-Traumatic Stress Disorder (PTSD) resulting from extreme fear and traumatic experiences and hostile attitudes (Orth & Wieland, 2006). Obviously, not only the individual situation, but also the wider community in which an ex-combatant acts affects the attitudes towards demobilization that we examine in this article. We therefore suspect that the individual’s decision to disarm is shaped by his personal experiences of fear and insecurity as well as the insecurity and political instability of the social context an individual is part of.

H1: The risk that an ex-combatant will never or only under certain condition hand in his weapons grows with the amount of hardship/fear experienced in the past, his subjective feeling of insecurity and the level of violence in the region of residence.

Opportunity cost arguments enjoy a widespread tradition in conflict research since the pathbreaking contribution of Haavelmo (1954). They are especially apparent in Grossman’s (1991:920) model of rebellion in which he links tax policy to individual decisions to join an armed movement: “...too high a tax rate would be bad for the ruler both because it would depress the tax rate ... and because it would increase the probability of a successful insurrection.” The initial contribution of Collier and Hoeffler (1998:565) to the civil war literature explicitly drew on Grossman. Their extension linked “the probability of the occurrence of war” in a decreasing fashion to per capita income and education. If we bring this conjecture back to indicial level of analysis where it was originally formulated, we can expect that the risk that an individual joins a militia or the government troops grows with worsening prospects to succeed in the productive

sectors of the economy. Collier and Hoeffler (2004) dispute this thesis with the conjecture that the presence of lootable natural resources incites quasi-criminal rebels to use political violence to enrich themselves with rents they could not garner peacefully. Collier and Hoeffler (2004) speak in this context of “greed” as a major motive of war, while they reject the view propagated in political science and sociology that individual or collective suffering – “grievance”, in their terminology – increases the risk of war. In other words, the ‘resource curse’, which is generally interpreted as the tendency of commodity-rich states to make bad investment decisions and to under-provide their population with public goods, therefore translates according to Collier and Hoeffler (2004) into an increased risk of civil war.

It is not surprising that such a provocative thesis has triggered an intensive debate which questioned the adequacy of crucial research design decisions and of the underlying logic of argumentation. Although development is one of the few robust influences on the risk of civil war in the meta-analysis of Hegre and Sambanis (2006), the key finding that income stemming from natural resources is key to understand the risk of civil war did not prove to be stable in alternative specifications of the regression model (e.g. Fearon 2005). Besley and Perrson (2008) and Fearon’s theoretical analyses (2008) put the logic of the underlying opportunity cost argument into severe doubt. To start with, Besley and Perrson’s (2008) work on state capacity and civil war suggests that development like war is a social outcome that needs explanation. The attempt to treat income per capita as an endogenous concept and to establish its possible impact on the risk of war via an instrumental variable approach (Miguel et al. 2004) did not yield results that survived slight alterations of the research design (Jensen and Gleditsch 2009). The problems of the opportunity cost argument are even more fundamental, as Fearon (2008) shows. In his view, the relationship between development and war is ambiguous as higher development makes the bounty for the contending forces more attractive, but it renders conflict also more costly as wages and other compensations for the soldiers simultaneously rise.

Weinstein’s (2005, 2007) models of rebel recruitment similarly suggest that both economically and politically motivated individuals might join rebel movements. Humphreys and Weinstein (2008) tests of the extent to which grievances, selective incentives, and social sanctions can explain participation in rebel groups and local militias also show that the richer respondents are less likely to give up their arms than the poorer ex-combatants interviewed in Sierra Leone. This suggests that the opportunity costs argument needs to be recast for the demobilization processes studies here. We expect that the less resourceful a soldier is, the more could he possibly gain by handing in the weapon. On the other hand, the economic environment an individual is living in can also have a severe influence on a combatant’s decision to give up his weapons.

Economic crises or economic insecurity are often an expression of social strain and should render individuals vigilant of possible security repercussions.

H2: The higher the opportunity costs of fighting and the better the economic situation of the region of residence of the ex-combatant, the smaller the risk that this former soldier will not hand his weapon or only conditionally do so.

We do not contend that these two classes explanations are mutually exclusive. In an analysis of an extensive household survey, Justino (2009) found that both considerations – poverty and insecurity – motivate individuals to support rebel groups or to participate in them. As economic incentives loom large in the design of DDR programs, we include the model on opportunity costs in our tests despite the differences in our expectation and the ones of the IGO officials who are responsible for these disarmament and reintegration measures.

Research Design

Method: We test the relative importance of the two competing analytical models that are used to explain the reluctance to hand in weapons with the help of multilevel regression models (e.g. Snijders, and Bosker 1999, Jones and Steenbergen 2002, Rabe-Hesketh & Skrondal 2005). Such models are adequate for our purpose as we expect demobilization decisions to be a consequence of individual attributes as well as the wider social context in which they act. Multilevel analysis allows not only to include explanatory factors from all relevant levels of analysis, but also enables us to include possible interaction effects between these variables.

In this analysis, we use the eighteen Somalian regions as the higher level unit of analysis. The basic idea of the multi-level modeling approach, in sociology dubbed “hierarchical models”, is in line with our theoretical argument that individual level explanatory variables do not fully capture the variance in the attitude towards mobilization. We use multilevel ordinal logit models to test our hypotheses.

Data: Even though Somalia belongs to the most unstable regions of the world, it surprisingly also belongs to the most thoroughly documented conflict zones of the world. The major part of our macro level data is based on the market data gathered by the Food Security and Nutrition Analysis Unit - Somalia (FSNAU). FSNAU was founded in 1994 in order to provide evidence-based analysis of the food, nutrition and livelihood security in Somalia (FSNAU 2010). The monthly market analyses offer a detailed overview of the development of each major market of every Somali region for the years between 1990 and 2010 including indicators such as price changes of main products, exchange rate developments and prices for unskilled labor. Additionally, FSNAU also provides data about the humanitarian situation in each region. A second source of macro level data is the Event Data Project on Conflict and Security (EDACS),

led by Sven Chojnacki and Nils Metternich, coding violent events in sub-Saharan Africa from 1990 onwards. This dataset allows for an exact location of the violent event, enabling us to calculate the number of people killed in each region in a specific period of time.

On the individual level, we are basing our analysis on a dataset gathered by the “Gesellschaft für Technische Zusammenarbeit” (GTZ) in the second half of 2003 in Somalia as part of the preparation for a Demobilization and Reintegration program. In a three-stage process, seven regions were selected in which trained interviewers conducted a total of 8,723 interviews with members of the militant organizations active in Somalia. 8124 of these interviews were valid. However, due to the quite extensive number of missings in several of our variables, our analysis includes roughly 7000 respondents, varying slightly across models. Based on expert rating, the seven regions where the interviews took place were chosen in such a way that they presented the regions with the highest militia density, including a major part of the population, important economic centers and important rural areas (Odenwald et al. 2007: 111). In collaboration with militia leaders, a minimum of one unit of each militia was chosen and – in a final step - interviewed. All but one of the main militant organizations participated (ibid.). While the insecurity in Somalia and the sensitive issue of the inquiry prevented a complete randomization of the ex-combatants, the final data set examined in this article includes approximately 8% of the total number of armed staff in Somalia and a bit less than 50% of all armed staff in Somaliland.

Description of Variables

Dependent Variable: The first part of the analysis relies on an ordinal variable with three categories summarizing the responses to the question in the GTZ survey under which conditions the interviewees would be willing to hand in their weapons. 15% of the respondents stated that they would do so unconditionally (category 2), 86% mentioned their willingness to give up their weapon under certain condition (1), and 6 % answered that they would never give up their weapon (0).³ We also test two models that differentiate between different responses concerning the conditions to hand in weapons. Model 4 includes only political conditions (0=never hand in weapon, 1=political conditional hand in weapons, 2= always hand in weapon), Model 5 includes only economic conditions (0=never hand in weapon, 1=economic conditional hand in weapons, 2= always hand in weapon).

Independent variables: Our theoretical argument distinguishes economic incentives and security considerations as potential explanations of the willingness to deliver weapons to national and international authorities as part of the demobilization process.

³ The middle category summarizes answers to seven categories; respondents could choose multiple responses. 55,8 of all respondents said that they would hand in the weapons if a strong central government were installed, 27,7% if the government could guarantee security, and 25,2% if there would be less crime. 21.1 of the interviewees stated their willingness in the event that there were severe penalties to keep weapons, 51.1% if the economic situation would be improved, 26.3% if giving up the weapons would be part of an agreement, and 46.3% in return for cash.

Hobbesian model: On the macro level, we rely on the intensity of violence in each region as a proxy for measuring the political insecurity that surrounds the ex-combatants. The indicator is based on the *Event Data Project on Conflict and Security* (EDACS) dataset, which provides the exact date and geographic location of war related deaths (civilian and military) in Somalia between 1990 to 2007 (Chojnacki & Metternich 2007). We used the mean number of minimum fatalities per region in the immediate years before the survey was conducted (2000-2002) as well as the year of the data acquisition (2003) and calculated the percentage according to the size of the population of each region. A second Hobbesian factor measures the political stability for each region through the presence of regional authority forces. As Maedl et al (2010) suggest, the activity of these troops indicates that the state has not completely failed and especially that the government monopoly on force is still more or less intact. We measure political stability through the percentage of ex-combatants belonging to these forces of all ex-soldiers interviewed in a region (Maedl et al 2010). The analysis evinces that there are two groups of regions in this regard: either the regional forces dominate in region or they are outnumbered by combatants who belong to rebel groups. We therefore coded regions with a clear dominance of regional authority forces as political stable (=1) and regions with a clear dominance of all other forces as political unstable (=0). The only exception is Hiraan, since there is a clear dominance of the Sharia court militia (66%) which can also be considered as providing at least some political stability. 57% of all respondents belonged to the Regional Authorities (such as Somaliland National Forces), while the rest of the interview partners were members of the Sharia court militias such as the *Hiran Court Forces* (6%), warlord militias like the *Rahanweyn Resistance Army* (21%), business militia (1%) or other armed groups (13%). 1% of all interview partners could not be assigned to any clear group (Maedl et al 2010).

On the micro level of the Hobbesian Model, we consider three variables reflecting an individual's personal war related experiences: *Length of stay*, *combat experience* and *PTSD*. We expect that ex-combatants who have spent a long time in an armed group will be more reluctant to give in their weapon than less experienced soldiers. The variable *length of stay* measures membership in an armed group in years. As the membership in a militant group says little about the violence and insecurity a person has experienced, we also include a variable that captures the fighting experience of the interviewees. In the sample, 65% of all combatants were actually involved in active combat while 35% were never engaged in military fights. We measure with a dummy variable whether an individual has combat experience or not (0=not combat experience, 1=combat experience). Again, there is a considerable variation between regions. For example, 98% of the combatants originating from Bakool have combat experience; in Sanaag, only 37% have been involved in active combat. Obviously, individuals differ in how they deal with their

experiences in an armed group and on the battlefield. Yet, the presence or absence of Posttraumatic Stress Disorder (PTSD)⁴, which is a common mental health problem in war and post-war societies, closely reflects the intensity of war experiences and the intensity of war related personal hazards. Recent studies suggest that PTSD diminishes the ability of combatants to reintegrate and re-adjust to civilian life (Odenwald et al. 2007, Savoca & Rosenheck 2000, Prigerson et al. 2001). A study of Jakupcak et al. (2007) of war veterans in Iraq and Afghanistan suggests that PTSD raises the level of aggression and hostility. Both findings provide a solid justification for the assumption that PTSD might affect demobilization choices of the individuals and therefore justifies the inclusion of a dummy variable that measures the absence (0) or presence of PTSD symptoms. PTSD was diagnosed by a standard procedure (Posttraumatic Diagnostic Scale, PDS), which had been adapted to the Somali culture by experts and tested in previous studies (Odenwald, Lingenfelder, Schauer, Neuner, Rockstroh, Hinkel & Elbert 2007). At the individual level, the decision to keep a weapon also reflect the individual legitimacy of fighting. We expect that members of the regional authority forces consider themselves as soldiers, whereas fighters of militant groups face a strong pressure to hand in their weapon or to at least declare their willingness to do so in an interview session. The variable militant group measures with a value of 1 if a fighter belongs to the regional authority forces, 0 otherwise.

Millsian model: Collier and Hoeffler (199, 2004) have advanced an aggregate level version of the opportunity costs model and associate underdeveloped regions and countries with a higher risk of conflict. In absence of reliable data on the regional GDP in Somalia, we employ malnutrition as a substitute concept. This indicator was obtained through the FSNAU data base and displays the percentage of people suffering acute malnutrition per region in 2002. For security reasons, no data could be collected in Baanadir. We therefore used the mean malnutrition of the three surrounding regions as a substitute. The analysis of Elbadawi and Hegre (2008) as well as Wiesehomeier et al. (2009) similarly suggests that economic shocks increase the risk of civil war. This would mean in the context of our examination of Somalia that soldiers residing in regions that are economically unstable are less happy with their personal disarmament than fighters living in relative stable regions We consider inflation rates as a measure of instability and consider regions in which the rate ranges between -8 and +8 as stable and other regions experiencing strong inflation or deflation as unstable. We accordingly introduce a dummy variable to measure *economic instability* with the value 1 standing for stability, 0 otherwise. The inflation rate was

⁴ Symptoms of Posttraumatic Stress Disorder (PTSD) are: (1) *Re-experience*: Individuals re-experience their traumatic experiences in the form of nightmares, flashbacks and intrusive recollections which are so intense that the victim believes to be back amidst the atrocities, (2) *Hyperarousal*: The individual experiences an exaggerated startle response and a persistent hyperarousal, has difficulties in calming down and falling sleep; (3) *Avoidance*: Individuals tend to actively avoid places or thoughts associated with traumatic experiences. Passive avoidance can manifest in the numbing of their emotional responsiveness in order to cope with unbearable feelings (Elbert 2006:6)

derived by the difference in exchange rate of Somalia Shillings (or Somaliland Shillings respectively) (FSNAU) in USD in the year 2002.

On the individual level, the survey included three questions that stand for concepts that are key for the opportunity cost argument *Property*, *Income* and *Education*. The link between the personal economic status and the personal decision to join a militant organization (Weinstein 2005, Oyefusi 2008) as well as the reintegration success (Humphrey and Weinstein 2007) is well established in literature. While Oyefusi (2008) concludes in line with the greed argument that low income levels encourage individuals to join rebel organizations, Humphrey and Weinstein (2007:546) find that poor individuals tend to face fewer difficulties in reintegration than wealthier individuals. Instead of using proxies to determine the wealth status of the combatants, we simply rely on the individual's personal estimation of their total property in USD and their monthly earning in USD. However, while property displays considerable variation (min. 0 USD – max. 16600USD), income is clearly lacking variation: 89% of the respondents stated that they have no income, 6% live on less than 1 USD a day while only 0.5% earn more than 100 USD a month. We nevertheless include both concepts, property and income, in our estimation.

Education: Besides the economic status, the educational background is a widely discussed factor for the determination of opportunity costs (Oyefusi 2008). The level of education was organized into five categories, where 1 stands for no education, 2 if an individual went to a madrasa (Islamic school), 3 for receiving primary, 4 for attending secondary and 5 for completing university education. Former madrasa pupils were considered to be less educated than those who had completed primary school education: the literacy rate among the later pupils amounted to 98%, while it only reached 57% for those coming from Islamic schools⁵.

Multilevel models for disarmament choices in Somalia

This article tests two explanatory models of the individual and contextual factor under which ex-combatants in Somalia refuse to hand in weapons or only conditionally agree to do so. Somalia has experienced one of most long-lasting civil wars and has frequently been described as a failed state (e.g. Bates 2008), especially after the 1st Battle of Mogadishu in 1993 in which 25 soldiers of an United Nations intervention force and several hundred Somalis died and which led to the U.S. withdrawal from the state at the Horn of Africa. The internal war, which started with a revolt against the autocratic leader Siad Barre in 1986, has affected the whole country, but the intensity in which the fighting devastated the country differs considerably across the regions. This becomes obvious through the GTZ/World Bank survey on which our analysis predominantly relies. The interview with more than 8000 ex-combatants took place in 2002/3 and thus one of

⁵ Literacy rate no school education =38%, koranic school =57%, primary school =98%, secondary school 99%, university 100%

the calmer periods of the entire conflict. Table 1 provides some summary statistics of the 18 regions that we distinguish in our analysis.

TABEL 1 Summary Statistics of Somalian Regions

Region	Interviews	PTSD (%)	Length of Stay (years)	Combat Exp. (%)	Property (USD)	Income (USD)	Edu. (cat.)	Military Org. (0/1)	Violence (%)	Malnutr. (%)	Eco. Stability (0/1)	Pol. Stability (0/1)
Awdal	481	.08	16	32	644	2.3	1.3	.91	.10	33.1	1	1
Bkool	133	5	14	98	1028	2.9	1.1	.38	1.03	18.6	0	0
Banaadir	705	17	10	82	270	2.4	1.2	.20	9.61	18.6	0	0
Bari	16	0	16	56	700	3.5	1.2	.67	7.18	18.3	1	1
Bay	498	3	11	98	1366	2.6	1.2	.19	4.62	20.5	0	0
Galguduud	432	10	13	76	362	2.4	1.1	.35	2.33	12.6	1	0
Gedo	126	11	14	63	748	5.6	1.3	.72	2.33	23.1	0	1
Hiiraan	803	8	16	85	968	12.7	1.0	.13	2.46	25.3	0	1
M. Juba	14	14	16	50	705	3.5	1.3	.66	1.13	18.3	0	1
L. Juba	341	11	13	48	762	8.7	1.5	.78	5.81	16	0	1
Mudug	720	2	15	85	813	2.3	1.0	.28	4.08	11.5	0	0
Nugaal	46	0	17	71	743	3.4	1.2	.63	.413	16.9	1	1
Sanaag	459	.2	15	37	582	2.5	1.5	.88	.037	15.1	1	1
M. Shabele	213	15	13	66	512	1.6	0.9	.31	3.92	19.4	.	0
L. Shabele	65	25	15	89	593	2.6	1.2	.49	2.57	19	0	0
Sool	50	1	14	48	542	1.6	1.6	.92	1.26	14.9	1	1
Togdheer	793	3	17	52	551	2.4	1.3	.93	.12	11.7	1	1
Woqooyi Galbeed	2,053	6	15	54	680	5.2	1.1	.96	0	15.7	0	1

Table 1 clearly shows that there are considerable differences across the regions.

Before we can start with the actual calculations, we need to make sure that using a multilevel model is appropriate for our case. This can be tested by taking a look at the between cluster variance ψ . The null hypothesis suggests that there is no random intercept in the model. If it proof true, we can use normal OLS regression since there is not variance between the regions and thus no need for a multilevel analysis. We perform a likelihood ratio test by comparing the stored estimates of the variance components model with the fitted model without the random intercept. The results of the Likelihood-ratio test are displayed in table 2. We can see that the null hypothesis can be rejected at standard significance levels thus justifying the use of a multilevel model.

TABLE 2 Likelihood-ratio test

Likelihood-ratio test	LR chibar2(01) = 193.49
(Assumption: . nested in m1)	Prob > chibar2 = 0.0000

To test the influence of political and security related factors as well as economic determinants on the willingness of ex-combatants to hand in their weapons, we chose a four step approach. In a first step we build a Hobbesian model including only variables that we relate to personal or regional security (*PTSD, length of stay, combat experience & violence and political stability*).

Second, a model based on the ideas of Mills is established, including only socio-economic variables (*property, income, education & economic stability, malnutrition*). Thirdly, we combine both models and establish a “full” model, comprising security related as well as economic variables. In all three cases we start by including only micro variables and, in a second step, continue by adding the macro variables.

Lastly, we take a closer look at the subpopulation of combatants that would only hand in their weaponry under specific circumstances, separating those respondents that indicated political factors as the main precondition of their disarmament from those that gave prevalence to economic considerations. Both sub models obviously include respondents who would never or unconditionally be poised to forego their weapons.

Our first hypothesis stipulated that the risk that an ex-combatant will never or only under certain conditions hand in his weapons grows with the amount of hardship experienced in the past and his subjective feeling of insecurity. In addition, we presumed that living in a violence stricken region would also increase the risk of the ex-combatant not giving up his weapons. In contrast to this "Hobbesian" view on disarmament, our second hypothesis followed the logic of Stuart Mills and associated higher opportunity costs of fighting with a higher chance of an ex-fighter surrendering his weapons. Similar to the first hypothesis, we presumed that social contexts matter and expect ex-combatants living in economically prosperous regions to be less likely to refuse disarmament or do so only conditionally.

However, the two hypotheses are not being regarded as mutually exclusive and in fact the data gathered for this study provides some backing to both schools of thought. In a "top down" view, i.e. not distinguishing between the conditions required for disarmament, both political/security concerns as well as economic considerations have an important role play, albeit in slightly differently accentuated ways (see table 3).

In the Hobbesian model (1), what sticks out is that experiencing strong post-war fear in the form of PTSD is strongly negatively related to demobilization and disarmament. Individuals suffering from symptoms of PTSD are twice as likely to never hand in their weapons or do so only conditionally than ex-combatants who show no signs of posttraumatic stress.

This is an interesting result, considering that the effect of PTSD receives little attention in political science research. In our study, we assume that the personal hardship experienced as well as the subjective feeling of insecurity impair combatants to hand in their weapons. PTSD reflects both: The more traumatic events/personal hardship a person has experienced, the more likely it is that he will experience symptoms of PTSD. Systematic studies not only in Somalia (Odenwald et al., 2005), but also in the Balkans (Neuner et al., 2002), the West Nile (Neuner et al., 2004a,b; Karunakara et al., 2004) and Rwanda (Schaal & Elbert, 2005; Onyut et al., 2004) point to a high

prevalence rates of posttraumatic stress disorder ranging from 19 to 51% in war torn areas (Elbert et al. 2006:6). On the other hand, individuals with PTSD are in a constant state of emergency and experience severe anxieties. Their feeling of insecurity is therefore significantly higher, leading to aggressive and anti-social behavior (Elbert et al. 2006:20). Freeman et al. (2003) conject a direct link between PTSD and firearms, arguing that war veterans with PTSD own four times as many firearms and report higher levels of dangerous firearm related behavior as a control group.

Equally on the individual level, combat experience, a measure associated with personal hardship, seems to have a strong impact on an individual's willingness to demobilize. If a person was involved in active combat, the risk of his never or only conditionally handing in his weapons decreases by half. It appears that people who are more strongly involved in life- threatening fights are more inclined towards putting an end to the war.

There is virtually no relationship between the length of stay and a combatant's willingness to disarm, however, suggesting that the quality of one's combat experiences may be more important for an individual's intentions to disarm than the sheer time spent in the fields.

The type of militant organization an individual belongs exhibits a strong effect and is negatively correlated with its preparedness to hand in his weapons. Combatants who consider themselves to be part of the regional authority forces are much less willing to demobilize. This indicates that self-help is an important motivation for keeping one's weapons. In the absence of a credible central government authority, members of local self-defense groups may also feel legitimized to carry weapons in an effort to maintain law and order.

While the findings on the individual level broadly support hypothesis H1, political context factors appear to be of lesser relevance for an ex-combatant's choice to disarm. Neither the level of violence in the region, nor the overall political stability region is correlated to the fighters' willingness to hand in their weaponry.

The explanation for these findings are not straightforward but at least in the first case could be related to information barriers. In other words, combatants might not be necessarily aware of violence across the region of their residence and hence the number of violent deaths may be not be salient for their subjective perceptions of insecurity.

Taken together, political and security factors play a great role in disarmament choices, with fear (PTSD) and combat experience being the predominant factors on the individual level. Furthermore, the type of militant group a person belongs to also heavily weights on the willingness to disarm. Interaction effects between the two levels of analysis were tested, but turned out to be neither important nor statistically significant.

Turning to the Millsian model (2), the findings look a little bit different. None of the individual variables seem to have any meaningful influence on the risk that a combatant refuses to disarm or does so under certain conditions only. As a matter of fact, neither property, nor income, nor an individual's level of education are correlated with disarmament choices, which is probably due to the high socioeconomic homogeneity among combatants (see table 1). The only meaningful and statistically significant effect is situated on the macro level. Combatants living in economically stable and prosperous regions are more than twice less likely to never give up their weapons or only conditionally do so than those residing in areas of economic instability. In other words, combatants coming from an economically stable region are more likely to give up their weapon.

At a first glance, hypothesis H2 is hence only validated in from a macro perspective. On a more cautionary note, it seems worthwhile considering that those having joined militant groups may have had lower opportunity costs of fighting to start with. The socioeconomic status of a combatant may be a more powerful explanatory factor for the choice to pick up weapons than to surrender them. All results stay similar when combining the Hobbesian and Millsian models in an all inclusive third “full” model (model 3). Here, the effect of economic stability becomes even more explicit.

As to the model fit, in the case of the Hobbesian model, the AIC is lower for the “micro variable only” model. This could be due to the fact that our Hobbesian macro variables fail to provide good explanations of the level two variations. In the case of the Millsian model, however, it is the other way around: Including the macro variables exhibits a better fit, which is most likely due to the explanatory effect of “economic instability”. However, the best fit is clearly exhibited by the micro-macro version of model 3, combining the two models and comprising micro as well as macro variables. This proves that none of the theory stands can be rejected and a holistic multilevel perspective is needed to explain disarmament choices of individuals.

Summing up, ex-combatants disarmament choices are being determined by the individual experiences of hardship and fear. Combatants suffering from PTSD are significantly less likely to hand-in their weapons (unconditionally). On the other hand, combatants strongly involved in combat thus having seen the horror of war are more willing to hand in their weapons. In line with the Hobbesian view, individual perceptions of insecurity significantly determine the willingness to disarm. The perceived lack of security may also explain the membership in regional para-state security forces, which in turn becomes a predictor for an individual's reluctance to disarm. Economic factors, first and foremost the so-called opportunity costs of fighting, appear to be of marginal relevance on the micro level. However, economics does come into play on the macro level. Fighters living in economically unstable areas seem to have much higher incentives

to keep their weapons, probably also in an effort to sustain themselves. In a nutshell: The prototype combatant who refuse to disarm all together or does so only under certain conditions suffers from PTSD, has no experience in violent fighting, feels legitimate to carry weapons as he considers himself part of the regional security forces, and lives in an area marked by economic instability.

TABLE 3 Multilevel Ordinal Logit Model comparing the Hobbesian Model, the Millsian model and an all-inclusive Full Model

	Hobbes Model (1)		Mills Modell (2)		Full Model (3)	
	Microvariables only	Micro- macrovariables	Microvariables only	Micro- macrovariables	Microvariables only	Micro- macrovariables
Individual effects						
PTSD	.66** (.10)	.66** (.105)			.64** (.10)	.64** (.11)
Length of Stay	.98** (.00)	.99** (.00)			.98** (.00)	.98** (.00)
Combat Experience	1.39*** (.12)	1.39*** (.12)			1.40*** (.12)	1.43*** (.09)
Military Organization	.74* (.10)	.73** (.10)			.74* (.10)	.73* (.14)
Property			.99*** (.00)	.99*** (.00)	.99*** (.00)	.99*** (.00)
Income			.998 (.00)	.998 (.00)	.99 (.00)	.99 (.00)
Education			1.00 (.03)	.997 (.03)	1.02 (.03)	1.01 (.03)
Regional effects						
Violence		1.04 (.08)				1.07 (.07)
Political Stability		1.20 (.56)				1.09 (.36)
Malnutrition				.964 (.02)		.97 (.02)
Economic Stability				1.90(*) (.68)		2.29** (.29)
Cut 1	-4.58***	-4.36***	-4.55***	-4.92***	.64***	-4.6***
Cut 2	1.95***	.4716***	1.953***	1.557***	1.8***	1.84***
N	7062	7062	7217	7217	7061	6865
Number of Regions ⁶	18	18	17	17	18	17
Log likelihood	-3092	-3092	-3259	-3180	-3083	-3005
Variances & covariances level 2	.70	.70	.59	.44	.62	.47
AIC	6199	6203	6531	6377	6187	6039
BIC	6247	6264	6573	6432	6255	6135

Note: Results are odds ratios. Standard errors in parentheses. Significance levels >0.001***, >0.01**, >0.001*

⁶ The number of regions varies due to the fact that no data was available for “malnutrition” the region Baanadir.

Now, we will turn to a more granular level of analysis, paying closer consideration to the conditions under which certain ex-combatants would be poised to demobilize. Respondents in the survey underlying this study were given a choice of various answer categories, covering both political and economic conditions (see table 4, conditions to hand in weapons). The first sub-model focuses on ex-combatants that referred to one or more political conditions (i.e. “strong central government”, “guarantee of security”, “less crime”, “severe penalties for keeping weapons”, “part of an agreement”) as pre-requisite for their disarming. The second sub models seek to examine what drives the disarmament choice of those that define economic incentives as the key to their disarmament (“improvement in economic situation”, “return weapon for cash”).

TABLE 4 Conditions to Hand in Weapons

Combatants were willing to hand in their weapons...	
55.8%	...if a strong central government is installed
27.7%	...if the government can guarantee security
25.2%	...if there would be less crime
21.3%	...if there were severe penalties to keep weapons
26.3%	...if this would be part of an agreement
51.1%	...if the economic situation would be improved
46.3%	...in return for cash

If we apply the multilevel model introduced above to these two subpopulations, causal patterns similar to the ones observed in the full sample become evident (see table 5). In both models (5 and 6), ex-combatants suffering from PTSD symptoms are less likely to be among those that would give up their arms if security or economic conditions improve, even though the effect fails to reach statistic significance in the sub samples. The length of stay in the fields remains uncorrelated with the intention to disarm, whereas actual combat experience increases that chance of an individual surrendering his arms. It exhibits a slightly stronger effect in the ECO conditions model, suggesting that improvements in economic conditions or an exchange for cash is an even stronger motivation for experienced fighters to hand-in their weapons than improvements in security and political conditions. As in the prior analysis, the type of militant organization a fighter belongs to remains an extraordinarily strong context factor behind disarmament choices.

As to the macro political variables, their importance remains minor. The effect of violence on the odds of handing in one’s weapons under certain political and economic conditions is negligible. Political stability increases the odds of an ex-combatant giving up his arms if economic conditions improve. While the effect would be in line with the “greed and grievance” argument described above, it fails to reach statistical significance.

Testing for the importance of individual opportunity costs and economic stability, we derive roughly the same pattern of micro and macro level effects as seen in the full sample. Individual socioeconomic circumstances do not have any particularly meaningful effect on the likelihood of conditional disarmament, regardless of whether the conditions would be economic or political. Ex-combatants coming from economically stable areas are however significantly more likely to hand in their weapons. They are almost three times more likely to be among those that give up their weaponry if the economy improves or cash is handed out in exchange for arms and close to four times for likely to figure among those that give up their weapons if the political and security situation improves. As for the full sample model, cross-level interaction effects were tested, but turned out to be insignificant. Both sub models show are convincing goodness of fit when compared to null models (McFadden's R^2 of .30 and 0.27 for the POL and ECO model respectively).

TABLE 5 Multilevel Ordinal Logit Model of Subpopulation of People handing in Weapons under Political or Economic Conditions

	Model POL (5) Subpopulation naming political conditions for decision to disarm	Model ECO (6) Subpopulation naming economic conditions for decision to disarm
Individual effects		
PTSD	.77 (.15)	.84 (.236)
Length of Stay	1.00 (.00)	1.00 (.00)
Combat Experience	1.22* (.12)	1.31** (.09)
Property	.99 (.00)	1.00 (.00)
Income	.99 (.00)	.99 (.00)
Education	.98 (.03)	.92** (.03)
Military Organization	.11*** (.02)	.09*** (.18)
Regional effects		
Violence	.95 (.06)	1.05 (.18)
Political Stability	.68 (.47)	1.46 (.79)
Malnutrition	.97 (.06)	.96 (.04)
Economic Stability	5.81* (5.1)	2.9* (.49)
Cut 1	-3.47***	-3.37**
Cut 2	-.18	-.16
N	2995	2876
Group variable: Region	17	17

Log likelihood	-2383.85	-2285.34
Variances & covariances level 2	3.32	5.26
AIC	4795.71	4598.688
BIC	4879.776	4682.186

Note: Results are odds ratios. Standard errors in parentheses. Significance levels >0.001***, >0.01**, >0.001*

Conclusion

Contrasting of what we call the Hobbesian and the Millsian view of demobilisation, we have made theoretical, methodological and practical contributions to the literature on post-conflict stabilization and civil war in this article. Theoretically, we show through a multi-level examination of survey data that both structural and individual factors influence the varying willingness of ex-combatants to disarm. This implies conceptually that studies, which favor either micro- or macro-level explanations at the expense of each other are incomplete and suffer from what is known in the international relations literature as the “level-of-analysis problem” (Singer 1960). Our study omits therefore in a methodological perspective the bias of studies, which only include individual attributes of the individual soldier or some structural attributes of post-conflict societies in the assessment of the readiness or reluctance of ex-soldiers to disarm. A second theoretical contribution of our article is the resuscitation of explanations that we link to the Hobbesian world view and that associate decision to disarm or to refuse to hand in weapons to experiences and expectations of insecurity. In recent years, many studies have focused on the economic incentives and disincentives to take up arms or to hand them in after the formal conclusion of a conflict. This narrow focus has hampered the theoretical progress insofar as it neglected that individual also become fighters because they feel threatened and not only because fighting offers access to economic resources. The statistical examination clearly shows that the Hobbesian perspective is much more persuasive at the individual level of explanation than the Millsian one. However, opportunity cost explanations, which have first been introduced to the social science by John Stuart Mills, offer some explanatory power in our sample at the regional level of aggregation. Soldiers and rebels who reside in areas experiencing economic shocks are much more likely to keep their weapons. This result is in our view no contradiction to the Hobbesian perspective as we can expect from a macro-perspective that economic shocks are closely linked to an increased risk of civil war (Elbadawi and Hegre 2007, Wiesehomeier et al. 2009). The practical implication of our article is finally that DDR programs need to be carefully designed and should avoid the creation of perverse incentives that increase the risk of conflict perspective. If a program does not increase the trust of the individual soldier, there is little hope that such fighters will hand in their weapons. As many of the former fighters suffer under

psychological and medical problems, an exclusive focus on the economic integration of the soldiers is equally unpromising.

Appendix

TABLE A-1 Descriptive Statistics of Variables on the individual and regional level

	Variable	Obs	Mean	Std. Dev.	Min	Max
Individual Level	Income	8123	4.688169	18.67229	0	300
	Property	8124	696.6619	1066.341	0	35650
	Education	8124	1.151896	1.119289	0	4
	PTSD	8124	.05613	.2301867	0	1
	Year	7682	13.66233	9.954198	0	83
	Combat experience	8124	.6507878	.4767505	0	1
	Age	8124	37.30096	12.61906	9	101
	Age ²	8124	1550.583	1106.865	81	10201
	Sex	8124	.8914328	.3111146	0	1
	Military Organization	8124	.570901	.494978	0	1
Regional Level	Violence	7948	1417.104	2456.831	19	9145
	Political Stability	7948	.6519879	.4763698	0	1
	Malnutrition	8124	17.57406	7.327172	9.8	38.4
	Economic Stability	7735	.2943762	.4557913	0	1

TABLE A-2 Variables Descriptions

	Variable	Description
Dependent Variable	Demob	Answer to the question: "Under which conditions would you hand in your weapon" (0=Under no condition, 1= under certain conditions, 2=always, under no specific conditions) Source: GTZ
Individual Level Variables	Income	Monthly income of person in USD. Source: GTZ
	Property	Property owned of person in USD. Source: GTZ
	Education	Level of education of person (0=None, 1= Koranic, 2=Primary, 3=Secondary, 4=University). Source: GTZ
	PTSD	Dummy variable for whether the respondent shows symptoms of the Post-traumatic stress disorder (1=Yes, 0=No)
	Years	Years of a person spend in militant organization. Source: GTZ
	Combat Experience	A dummy variable indicated whether the respondent has fought in combat (0=none, 1=yes). Source: GTZ
Regional Level Variables	Military Organization	Type of group that individual belongs to (1=regional authority, 0=other(sharia militia, warlord militia, business militia, other). Source: GTZ
	Violence	Level of violence per region measured in total deaths 2000-2003 relative to population Source: EDACS
	Political Stability	Dominance of Regional Authority (=1), dominance of other rebel groups (=0)
	Malnutrition	Percent of people suffering from malnutrition
	Economic Stability	Regions with inflation rate 0-8 are considered stable (=1), regions with a inflation rate above 8 or deflation (below 0) are considered economically unstable (=0)

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