Disentangling the Determinants of Successful Disarmament, Demobilization, and Reintegration

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Abstract

Since 1989, international efforts to end protracted conflicts in Africa, Latin America, and Asia have included sustained investments in the disarmament, demobilization, and reintegration (DDR) of combatants from the warring parties. Yet, while policy analysts have debated the organizational factors that contribute to a successful DDR program, little is known about the factors that account for successful demobilization and reintegration at the individual level. Using a new dataset of ex-combatants in Sierra Leone, this paper analyzes the determinants of successful disarmament, demobilization, and reintegration. We show that the most important determinant of reintegration success is the abusiveness of the unit in which a soldier fought. Individuals from abusive units face an uphill battle in returning to civilian life. Conventional views about the importance of age and gender find little support in the data. Finally, there is only weak evidence that participation in DDR programs improves reintegration prospects at the individual-level.

[1] This research draws on a large survey led by the authors together with the Post-conflict Reintegration Initiative for Development and Empowerment (PRIDE) in Freetown, Sierra Leone. Financial support was provided by the Earth Institute at Columbia University, and logistical support came from the Demobilization and Reintegration office at the United Nations Mission in Sierra Leone (UNAMSIL). We are particularly grateful to Alison Giffen and Richard Haselwood for their extensive work on this project, to Allan Quee, Patrick Amara and Lawrence Sessay, our partners in the field at PRIDE, and to Desmond Molloy at UNAMSIL.

I. Introduction

Since 1989, international efforts to end protracted conflicts in Africa, Latin America, and Asia have included sustained investments in the disarmament, demobilization, and reintegration (DDR) of combatants from the warring parties. Many of these programs have been part of comprehensive political settlements, negotiated and agreed to under the watchful eye of international observers after years of inconclusive fighting. Other demobilization efforts have been led by governments victorious in civil war. In a small number of instances, outside actors have employed coercive means to facilitate disarmament and the reestablishment of security. Yet across all these cases, the basic purpose of DDR has been clear: to reduce the size of armed forces while reestablishing a legitimate monopoly over the use of force by the government (Berdal 1996).

The first United Nations peacekeeping operation to undertake disarmament and demobilization was the United Nations Observer Group in Central America (ONUCA) in 1989. Since then, DDR has figured prominently as part of UN operations in El Salvador, Cambodia, Mozambique, Angola, Liberia, Sierra Leone, Guatemala, Tajikistan, Burundi and the list goes on. By 2000, when the Secretary General was asked to report to the Security Council on the role of the UN in DDR efforts, he felt confident enough to conclude that:

> "a process of disarmament, demobilization, and reintegration has *repeatedly proved to be vital* to stability in a post-conflict situation; to reducing the likelihood of renewed violence, either because of a relapse into war or outbreaks of banditry; and to facilitating a society's transition from conflict to normalcy and development (United Nations 2000)."

This certainty among policymakers about the need for disarmament, demobilization, and reintegration efforts after civil conflict should not blind us to the difficulty of the task at hand. In post-conflict situations, following years of fighting between warring parties, distrust and uncertainty are rife. Disarmament efforts, which aim to remove the means by which the war was fought, also leave factions and combatants vulnerable, without the weapons they would need to protect themselves if the other side reneges on an agreement. Demobilization represents the formal disbanding of military organizations – a process which strips combatants of the prestige, comradeship, and economic opportunities that may have been channeled through their participation in the fighting. Losing those ties can be profoundly threatening to ex-combatants. Reintegration programs often thrust largely illiterate soldiers back into communities which suffered enormous violence during the fighting. Without skills and isolated from social networks, combatants face an uphill battle in reestablishing a non-military way of life.

While policymakers recognize that disarmament, demobilization, and reintegration are fraught with complexity, few systematic efforts have been launched to evaluate the determinants of successful reintegration by ex-combatants after conflict. The literature is chock full of 'lessons-learned' assessments which attempt to parse the factors that account for the success of a DDR program in country X (based on an analysis of the program in country X). Success, in these studies, hinges on whether peace was maintained, soldiers were demobilized, and the international community was able to disburse its funds.

But to our knowledge, no rigorous attempt has been made to identify factors that might explain whether individuals are able to successfully reintegrate after conflict. In this paper, we argue

for a reframing of the question. Efforts to assess the impact of DDR require a source of variation in the use of DDR programs. At the macro-level, this can be achieved by comparing countries that did or did not have DDR programs. At the micro level, this can be achieved by comparing individuals that did and did not participate in DDR programs. Does DDR work for individual *i* in country X? What explains whether individuals are able to disarm, demobilize, and reintegrate into society after war? To what extent does participation in internationally-funded DDR programs impact the likelihood of reintegration? We address these questions using results from a systematic survey of ex-combatants representing the five warring factions in Sierra Leone's civil war.

Sierra Leone's DDR process is widely regarded as a success story, and elements of the Sierra Leone 'model' are being replicated in neighboring Liberia, Burundi, and now as far away as Haiti (World Bank 2003). But our empirical analysis injects a cautionary note based on a careful analysis of the post-war trajectory of Sierra Leone's ex-combatants. While more than 79,000 fighters were demobilized by the international community, our estimates suggest that at least seven percent experienced severe problems – in gaining acceptance, finding employment, and accepting the democratic process – after the demobilization and reintegration process concluded.[2] This estimated pool of approximately 5000 struggling fighters is no small matter. For a civilian population that bore the brunt of a war initiated by less than 200 fighters, the failure to reintegrate thousands of ex-combatants may represent a threat to continued stability that cannot be ignored.

Our analysis focuses on "exogenous" and "endogenous" determinants of successful reintegration. The exogenous determinants include individual-level, group level, and community-level determinants of reintegration success that should figure in the design and implementation of DDR programs. The endogenous determinants are those interventions specifically designed to ease reintegration – the use of stop gap programs, the deployment of peacekeeping troops and the DDR program itself.

We find in our analysis of the exogenous determinants of reintegration success that, contrary to conventional wisdom, there is little evidence in Sierra Leone that women faced a significantly harder time reintegrating into civilian life after conflict and only weak evidence that children faced greater reintegration problems.[3] Instead, the most important determinant of an individual's reintegration prospects is the abusiveness of the unit in which he fought. Proxies for the level of abuse perpetrated by an individual's unit are strongly associated with low levels of reintegration success, even controlling for unobserved attributes correlated with membership in the different factions. In addition, individuals who do not return to the communities in which they lived before the war exhibit more difficulty gaining acceptance from family and community, reducing the likelihood of successful reintegration.

In our study of endogenous determinants, we find little evidence that participation in the DDR program increases the likelihood of successful reintegration. Non-participants do just as well in the post-war period as participants, controlling for other major determinants of an individual's prospects. We examine three possible explanations for this finding. The simplest explanation is that participation in DDR had no perceptible impact on reintegration success. There are two additional

[2] The margin of error for this estimate (with 95% confidence) is plus or minus 1.9%.

[3] This finding should be interpreted with caution. Human subjects concerns prevented us from interviewing soldiers who were children at the end of the fighting. Nonetheless, our sample includes a substantial proportion of individuals who joined the factions as children and were over 18 when the war came to an end.

explanations. The first is that the effects on individuals are masked by a selection effect: plausibly the DDR program succeeded in incorporating those fighters that would have had the greatest difficulties reintegrating. The lack of a subsequent difference between those that entered DDR and those that did not would then indicate that DDR had a positive effect.

The second is that the impact of DDR is dispersed: it may be that even non-participants benefit from the DDR program as DDR affects the perceptions of ex-combatants within communities, or through direct spillover effects between those ex-combatants that did take part and those that did not. We have yet to find support for the first story, although our examination of selection effects is as yet incomplete. We find, however, weak support for the second. Levels of reintegration success are significantly higher in communities with large proportions of fighters who went through the formal DDR program.

The first section of this article situates disarmament, demobilization, and reintegration in the context of existing theoretical arguments about the determinants of successful peace-building. The second section reviews recent work that evaluates the impact of DDR programs at the macro-level. A third section introduces the case of Sierra Leone and describes our research method. The fourth and fifth sections describe our empirical strategy for studying the exogenous and endogenous determinants and highlight our major findings. A conclusion discusses the relevance of our results for broader discussions of DDR and post-conflict strategy.

II. DDR in the Transition from War to Peace

International peace-building is now considered a critical instrument of the international community for addressing countries in conflict (Doyle and Sambanis 2000). In the 1990s, from Somalia to Haiti and Cambodia to Liberia, the international community has invested significant resources in efforts to bring conflicts to an end and reduce the likelihood that they will recur. Investments in the disarmament, demobilization, and reintegration of combatants have been fundamental to the United Nations' growing role in post-conflict situations.

The United Nations defines DDR as follows (United Nations 2000):

(a) Disarmament is the collection of small arms and light and heavy weapons within a conflict zone. It frequently entails the assembly and cantonment of combatants; it should also comprise the development of arms management programs, including their safe storage and final disposition.

(b) Demobilization refers to the process by which parties to a conflict begin to disband their military structures and combatants begin the transformation into civilian life. It generally entails registration of former combatants; some kind of assistance to enable them to meet their immediate basic needs; discharge, and transportation to their come communities. It may be followed by recruitment into a new, unified military force.

(c) Reintegration refers to the process which allows ex-combatants and their families to adapt, economically and socially, to productive civilian life. It generally entails the provision of a package of cash or in-kind compensation, training, and job- and income-generating projects.

While much of the literature on DDR is practical – outlining how programs should be designed and implemented – the demobilization of armed factions occupies a central (yet implicit) place in theories of civil war termination and post-conflict peace-building as well. In particular, the literature helps us identify what successful DDR should look like in terms of changing patterns of behavior on-the-ground.

A central insight in the literature on civil war termination is that adversaries face a security dilemma (Walter 1997). Civil war is characterized by an anarchical environment – no government exists to ensure order, no judicial system enforces contracts, and groups are divided into independent, armed camps. But signing a peace agreement to end the war does little to address the core security dilemma that exists in a state of anarchy. A peace agreement requires that armed factions demobilize their forces, yet those forces are the only thing that stands in the way of their defeat by an adversary. In one statement of this argument, Walter claims that "any attempt to end a civil war and unify the country also eliminates any ability to enforce and secure the peace." (Walter 1997, p. 338) The fact that settlement can leave a group worse off than it would have been if it continued to fight, makes cooperation highly unlikely as promises to abide by an agreement are deemed not credible by the armed factions. In effect, warring factions cannot be expected to disarm, demobilize, and disengage their military forces when no legitimate institutions exist to enforce the contract.

The solution to this dilemma is a credible third-party guarantee – an outside actor that monitors the terms of the peace agreement, verifies the actions taken by each side, and sanctions violations with force if necessary. Third-party enforcers can offer assurances that warring factions will be protected, terms will be fulfilled, and promises will be kept (at least as long as they exert some authority in the post-conflict environment). With external enforcement, cheating becomes difficult and costly, and the payoffs to implementing a peace agreement rise.

The war termination literature thus identifies a critical role for external actors in enabling the reciprocal demobilization of competing forces at the end of a conflict. Successful demobilization, from this perspective, means that combatants have "shed their partisan armies and surrendered conquered territory" even though such actions leave them more vulnerable in the short-term (Walter 1999, p. 127). External intervention is associated with a more stable peace, in part, through this mechanism of breaking down the command-and-control structures and capacity of warring factions.

Other research on civil war resolution focuses on spoilers (Stedman 1997). Spoilers are, "leaders and parties who believe that peace emerging from negotiations threatens their power, worldview and interests, and use violence to undermine attempts at achieving it." (Stedman 1997, p. 5) If not properly engaged, spoilers can destroy negotiated settlements, plunging countries back into civil war.

Spoilers come in many shapes and sizes; differences in their motivations and goals dictate the types of strategies international actors might employ to bring them to the table. In particular, three types merit special consideration: limited spoilers who advance concrete goals and can be incorporated into the peace process, total spoilers who will reject the process regardless of the benefits and costs, and greedy spoilers whose goals can be affected by calculations about the likelihood of realizing gains or losses. Stedman rejects the possibility of ever accommodating total spoilers, but argues that limited and greedy spoilers can be managed during the peace process. In particular, he identifies a strategy of inducement in which positive measures can be taken to address

the grievances of factions who stand in the way of peace. Demands may include greater protection, greater benefits, or legitimization as part of the peace process.

Increasingly, DDR programs are one of the key inducements used by international actors to manage spoilers in post-conflict situations. The design of demobilization efforts offers a host of carrots (and some sticks) outsiders can employ. Cantonment areas, guarded by external forces, offer factions the security they require to mobilize troops for disarmament. Reintegration packages and training programs enable leaders to deliver concrete benefits to combatants at the conclusion of the fighting, some of which can be designed to address underlying grievances that gave rise to the conflict. The process itself provides a mechanism to legitimize the warring factions (or exclude them), and engages the leadership of the armed groups in both program design and implementation. Thus, DDR can play a key role in neutralizing spoilers by offering them protection, benefits, and legitimacy. To the extent that DDR programs reintegrate combatants into non-military life and help them to find gainful employment, we can think of the programs as a key element of successful peace-building.

DDR programs are also becoming part and parcel of larger efforts to reform governance structures in post-conflict environments. A third insight of the war termination literature is that institutional redesign in the peace agreement may provide a channel through which warring parties can send costly signals of their commitment to a permanent settlement (Hoddie and Hartzell 2003). In particular, parties can agree to participate in new institutions with potentially high costs to themselves, helping them to overcome the distrust that exists in the post-war period.

For example, institutional design might include the integration of armed forces from competing factions, the appointment of key military officers from formerly adversarial groups into the same hierarchy, and perhaps provisions that allow groups to maintain small forces for a set period of time. Walter offers a broader view of institutional reconfiguration that envisions groups committing to power-sharing arrangements (such as a decentralized form of federalism). These new arrangements might address concerns of political elimination and could increase parties' buy-in to the political process (Walter 1999). Thus DDR programs also contribute to post-war stability by incorporating formerly opposing groups into new, unified political and military structures. Successful DDR will likely be characterized then by signals of buy-in from ex-combatants themselves to the new political and social order.

A brief look at the war termination literature points to a critical, yet implicit role for disarmament, demobilization, and reintegration in the resolution of civil conflict. It suggests three aspects of successful reintegration that are measurable and believed to be linked to a stable post-war political order: (1) the breaking down of command, control, and capacity in the warring factions; (2) the reintegration of ex-combatants into the economy and community life and; (3) the development of a political and military structure that gives combatants a stake in the future of the country (and allows them to signal their commitment to peace). In section five, we use these three related concepts in proposing a measure of reintegration success for Sierra Leone.

III. Evaluating the Impact of DDR

As the UN now has more than a decade of experience in disarmament, demobilization, and reintegration, there has been no shortage of attempts by policy analysts and practitioners to cull the lessons learned from various experiences of implementation around the globe. These evaluations

neatly divide into three categories: lessons that emerge from dialogues among policy experts, from cross-country comparisons of program design, and from the outside evaluation of specific DDR programs. While these approaches employ distinct research strategies, they share a common aim: to advance hypotheses about the determinants of successful DDR at the country level. We discuss each in turn, before highlighting the need for new evaluation approaches that enable us to isolate the factors that make reintegration more or less difficult for ex-combatants and precisely capture the impact of outside intervention.

Dialogues among policymakers and practitioners have produced a number of lessons drawn from retrospective evaluation of the successes and failures of individual DDR programs. Workshops of this type have been hosted by UN agencies, U.S. government departments, and research think-tanks including the Institute for Security Studies in South Africa and the International Peace Academy. A recent volume bringing together the diverse insights of practitioners and researchers offers six lessons learned that ought to guide the design and implementation of DDR efforts (Meek and Malan 2004). These include the need for integrated planning from the earliest stages; a focus on prioritizing and linking reintegration more fully to disarmament and demobilization; efforts to employ a regional approach, recognizing that borders do not constrain conflicts; clear and articulated objectives for the DDR program; active efforts to manage the expectations of ex-combatants; and attention to the inequities DDR programs create between combatants and community members. Evaluations of this type aim to illuminate processes of program design and implementation hypothesized to matter for the outcome of interest: successful demobilization of armed forces. The focus is on identifying how better to organize and design programs, by drawing on the constraints and difficulties faced by practitioners in different contexts. Little attention is paid to the measurement of success or to other factors outside of program design that might impact the prospects for demobilization and reintegration, either at the country or individual level.

A second approach employs cross-country comparisons of program implementation in an effort to extract those factors that account for the success or failure of DDR programs. Perhaps the most well-known work in this area has been produced by the World Bank, which sought to make sense of its involvement in military demobilization by comparing program experiences in seven countries (World Bank 1993). The authors advance a series of measurable outcomes linked to four aspects of success for a DDR program: security, political, economic, and fiscal. For example, on the security front, the authors argue that success might be measured by looking for a reduction in the number of guns circulating, the dispersal of ex-combatants, the resumption of normal economic activity, and a decline in civilian violence, among other indicators. These measures are focused especially on outcomes at the national level. The comparative study comes up short, however, in its efforts to isolate the factors that account for success or failure across the different programs. As in the studies described above, attention is paid almost entirely to issues of program design (such as the extent of involvement of veterans in program management, for example). The study hints at some deeper variables of causal importance, including whether or not DDR programs are implemented in an environment in which political and economic agreements among ex-combatants have already been forged ahead of time. Looking ahead, the authors argue for more sustained data collection at the individual level that would allow for improved program design *and* evaluation – a challenge we attempt to answer with the survey described below.

In another version of the cross-country comparison, Spear identities five factors that are "particularly important in determining the likelihood of successful disarmament and

demobilization." (Spear 2002) Specifically, the success of DDR depends on the feasibility and aims of the peace agreement, the implementation environment, the capability and resources of the implementers, the attitudes of the warring parties, and the effective verification of treaty implementation. On the implementation front, for example, the presence of an outsider capable of securing the country before DDR begins is associated with a higher likelihood of disarmament, demobilization, and reintegration. These factors come closer to the independent variables of interest (both of program design and background conditions) likely to matter for the outcomes we care about. But again, little effort is made to measure success, to account for other factors that might explain the variation in outcomes, or to examine the trajectory of demobilization in countries that did not receive a UN DDR program. Without more systematic comparisons, we are hard pressed to say anything concrete about the factors that matter.

A final approach involves the evaluation of country-specific programs. Here attention is directed toward the impact of DDR programs within a country on specific populations of ex-combatants. Sierra Leone's "Tracer Study" provides a good example of this method (Stavrou et. al., 2003). In the Tracer Study, funded by the Multi-Donor Trust Fund, the authors use quantitative survey techniques to follow the post-war trajectory of a cohort of 250 ex-combatants. Special attention is paid to the measurement of two dependent variables: economic and social reintegration. In terms of economic reintegration, the survey aimed to assess the quality and nature of employment found by ex-combatants after their participation in the DDR program. Social reintegration referred to levels of family and community acceptance. The Tracer Study is a model effort in terms of developing more systematic measures to assess the impact of DDR. Its weakness, however, is that by talking to only those who participated in DDR programs (a subset of ex-combatants), we cannot know anything about the impact of those programs on economic and social reintegration. Moreover, driven by donor considerations, the authors collected few covariates that might help to explain progress at the individual-level, including information about how individual soldiers experienced the civil war.

In reviewing the literature on the implementation of DDR, one fact is apparent: little attention has been paid to the systematic analysis of the conditions under which such programs work at both the macro and the micro-levels. Effective evaluation of DDR requires a data strategy that allows us to examine impacts by comparing countries in which DDR was implemented with those where it was not, communities where programs were established with those that did not receive investments, individuals who participated with those who did not, or areas in which one type of DDR program was implemented with places where other techniques were used. For effective evaluation, it is essential that a ***control*** group is established to make comparison possible.

The optimal way to identify a control group is to use the method of "randomized intervention." Essentially the process of randomized intervention works as follows: if there are 100 people that will receive some treatment and 200 people who are eligible to receive the treatment, then 100 people are chosen randomly from the group of 200 eligible people and assigned the treatment. All 200 people, however, are tracked. The fact that the 100 are chosen randomly means that there is no systematic difference between those that did and those that did not receive the treatment – ***the only* systematic *difference lies in the treatment itself***. While of course different individuals and communities differ for a range of reasons, the purpose of evaluation is to identify the systematic effects of DDR.

Randomized intervention provides enormous power for understanding the impacts of interventions. It may be the only realistic strategy to get at key questions on which policy practitioners in DDR have yet to come to consensus: whether benefits should be targeted to individuals or communities, to what extent special groups (women and children) should be included in the process, and what forms of training are linked to future economic success. However, in a post-war environment, randomization is often politically infeasible.

Short of randomization, researchers can bring to bear statistical techniques to try to isolate the determinants of reintegration success and assessing the impact of particular programs. This requires a significant investment in data collection to identify individual-level, faction-specific, and community characteristics that are associated with successful reintegration. At the same time, such survey work must track participants in DDR programs along with non-participants in order to capture the marginal impact of these programs on the outcomes of interest. In the remainder of this paper, we describe a survey conducted in Sierra Leone to identify and track ex-combatants in the post-war period.

IV. Surveying DDR in Sierra Leone

In January 2002, when the government of Sierra Leone declared its more than decade-long war officially over, the international community showered it with plaudits for a successful disarmament, demobilization, and reintegration program that paved the way for a stable post-war political order. This turn of events was unexpected for a country that experienced a brutal civil war which captured international attention, a stop-and-start peace-building effort lasting more than four years, and the persistent negative spillover effects of violence in neighboring Liberia. The stable, post-war period now provides an opportunity to ask three questions: To what extent have former combatants disarmed and reintegrated in Sierra Leone? What are the factors that account for successful reintegration? Have DDR programs and other international efforts increased the likelihood of successful disarmament, demobilization, and reintegration. Before we turn to an analysis of the data, we provide some brief background on the conflict, the demobilization process, and the survey itself.

The war in Sierra Leone began when a small group of combatants – calling themselves the Revolutionary United Front (RUF) – entered the country from neighboring Liberia, with the backing of Charles Taylor. Over the course of nearly ten years of fighting, Sierra Leone experienced violence of horrific proportions. Tens of thousands of civilians were killed, and hundreds of thousands were displaced from their homes.

Soon after the war began, the national government fell to a coup, replaced by the National Provisional Ruling Council (NPRC), which sought to defeat the RUF by hiring a South African security firm (Executive Outcomes) in support for the Sierra Leone Army (SLA). Following a second coup, the country returned to civilian rule in 1996, when President Kabbah and the Sierra Leone People's Party were elected to power. Kabbah sought to end the war through an abortive peace process in 1997 and by forging an alliance with a federation of local militia that had formed to fight the rebellion (the CDF). But with the war on-going, Kabbah was quickly deposed in a coup, and the Armed Forces Revolutionary Council (AFRC) took power. The AFRC invited the RUF into a power-sharing arrangement which lasted until Nigeria, leading a West African intervention force, restored Kabbah and his democratically-elected government to power.

Following Nigeria's intervention, a fifth faction formed (the West Side Boys (WSB)), incorporating elements of the AFRC, RUF, and SLA, and the AFRC/RUF alliance retreated to the bush, plotting a major attack on Freetown. That attack in January 1999 caused bloodshed which was beamed around the world. The warring parties were soon pressured into a peace agreement at Lomé, which incorporated the RUF into a power-sharing arrangement. A UN force (UNAMSIL) was deployed to take the reigns from the Nigerians, but it was poorly organized. With mistrust high, the treaty broke down and the RUF took hundreds of peacekeepers hostage. With the country returning to violence, the British intervened to rescue the hostages and reestablish security. Along with Guinean troops, the British forced the RUF into submission, substantially weakening its capacity. Finally an effective presence, the UN took a leadership role in disarming and breaking down the warring factions.

Given the ups and downs of the war itself, it should come as no surprise that the DDR process faced innumerable hiccups in its implementation. The first effort to demobilize soldiers began in 1998, with the goal of dismantling the belligerent parties, and transforming their organizations into political parties. Kabbah's government led this process after it was returned to power by the Nigerians. But it was wholly unsuccessful, as fewer than 5000 ex-combatants registered for disarmament and demobilization. A second phase began in 1999, after the Lomé Accord was signed, and it continued until 2000 when the war broke out anew. During this period, slightly more than 20,000 combatants turned up to be demobilized. The bulk of demobilization took place after UNAMSIL was beefed up, following the British intervention, in 2001-02. In the third and final phase close to 50,000 combatants disarmed. This brought the total caseload to nearly 74,000 fighters.

The disarmament process was conducted at reception centers around the country. It included five phases: the assembly of combatants, collection of personal information, the verification and collection of weapons, the certification of eligibility for benefits, and transportation to a demobilization center. Once disarmed, combatants were prepared to return to civilian life in demobilization sites where they received basic necessities, reinsertion allowances, counseling, and eventually transportation to a local community where they elected to live permanently. In the community, combatants benefited from training programs (largely vocational skills including auto repair, furniture-making, etc.) designed to ease their reentry into the local economy. Moving more than 70,000 soldiers through this process is undoubtedly an accomplishment in itself.

While recent analyses have conducted an institutional post-mortem of the DDR process – looking at how the UN operations might have been better organized, the programs better targeted, community ownership better obtained – they also point to serious challenges that remain in the reintegration process (Meek et. al. 2004). Combatants in Sierra Leone committed widespread atrocities and destroyed much of the country's infrastructure. The challenges of gaining acceptance, finding employment, and accepting that the war has come to an end are often overwhelming for many soldiers who grew up knowing nothing other than war (Ginifer 2004).

To assess the extent to which combatants have been able to reintegrate and identify the relative importance of participation in the DDR program, we gathered systematic data on a sample of ex-combatants, some of whom participated in the formal DDR effort and others who elected to remain outside of it. The survey was conducted between June and August 2003, slightly more than a year after the war came to an end. The study targeted a sample of 1000 ex-combatants; a total of 1043 surveys of ex-combatants were completed. The main method for gathering information was

through the administration of a closed-ended questionnaire by an enumerator in the respondent's local language. Interviews were conducted at training program sites and in community centers around the country.[4]

To ensure as unbiased a sample as possible, the survey employed a number of levels of randomization. First, teams enumerated surveys in geographic locations and chiefdoms that were randomly selected. Estimates of the population of ex-combatants presently residing in the chiefdoms were made based on data from the National Commission on Demobilization, Disarmament, and Reintegration (NCDDR), the National Statistics Office, and estimates of experts in Sierra Leone. The estimates of the population distribution were used to generate weights that were used to draw 63 clusters of 17 subjects throughout the country. These clusters fell within forty-five chiefdoms or urban localities and these forty-five localities formed the basic enumeration unit. The fact that the sampling frame depended in part on NCDDR estimates implies that it is possible that areas in which NCDDR was most inactive were under-represented in our sample.

Within each enumeration unit, sites were also randomly selected, with both urban and rural areas represented. For each enumeration unit, specific numerical targets were set for the major factions, based on the randomization and the estimated national distribution of faction members. Broad goals were also provided to guide survey teams in meeting gender and age targets based on the estimated national share of women and children in the groups: enumerators were instructed that on average one in twelve individuals interviewed should be a woman, and one in nine should have been under the age of 16 at the end of the conflict. Enumerators were instructed to compare actual numbers of children and faction members to target goals each day.

Within each enumeration unit, enumerators worked through both official (UN and government) contacts and local community leaders to develop lists of ex-combatants. Teams identified pools of candidates from more than one source: some from the town or village Chief, some from the village youth coordinator, some from various DDR and NCDDR skills training centers, and so on. In every case, the teams aimed to identify two to three times the targeted number of potential respondents and then to randomly select respondents using a variety of methods. In most instances, Chiefs and DDR staff asked a number of ex-combatants to meet at a public location and teams selected candidates randomly from that pool (by choosing every third person or selecting numbers from a hat). While this method worked well, in some areas less than twice the target population was identified, particularly in very remote rural areas, areas with small ex-combatant populations, and areas with highly polarized communities.

The survey elicited a detailed profile of each of the combatants including their socio-economic backgrounds, their experience of the war itself, their involvement in the DDR process, and the realities they have faced in the post-war period. The data is rich and textured, in spite of its closed-ended format. It allows for a careful analysis of the determinants of reintegration success, which we undertake in this paper. But it also provides data useful for systematic examination of the

[4] An obvious concern with survey work is truth telling. Respondents may have strong incentives to misrepresent the facts. With the Special Court operative in Sierra Leone during the administration of the survey, some respondents might have been concerned that their answers could be used as evidence for the prosecution. In the training, a script was developed for enumerators to help allay these concerns. It was also important that survey teams administered the survey in private, in an effort to protect people's privacy.

strategies of the warring factions and the determinants of levels of violence, which are reported elsewhere (Humphreys and Weinstein 2005).

V. Empirical Strategy

The dependent variable in our analysis is an index of successful reintegration. We created the index by undertaking a factor analysis of respondents' answers to five related questions in which they describe patterns of economic, social, and political behavior in the post-war period. The weights derived from the factor analysis were then used to create a single measure, *reintegration success*, which ranges from 0 to 1.[5]

The questions used to construct the index capture three distinct elements of reintegration that follow from our analysis of the literature on civil war termination. Successful reintegration requires that combatants break their ties with the warring factions, so that previous command and control structures no longer operate in the post-war period. We include a question that assesses the extent to which combatants still turn to faction leaders for assistance. Reintegration also depends on the degree to which combatants gain entry to the local economy and are accepted by their families and communities. The index includes questions about the employment status of combatants and the extent to which they continue to face problems in gaining acceptance from family and community members. Third, successful reintegration requires that combatants accept the democratic political order and view participation in elections as a realistic means for affecting political change. We include a question that asks respondents about their own sense of the viability of the democratic process.

(Figure 1)

The dependent variable displays significant variation, as detailed in Figure 1. The vast majority of ex-combatants have experienced high levels of reintegration success, as exhibited by the clustering of values on the index close to one. At the same time, approximately 2% of respondents cluster at the very bottom of the index, and an additional 5% exhibit values on the index in the middle of the range.[6] While our measures support the idea that across individuals in Sierra Leone, reintegration has proceeded with great success, the difficulties faced by 7% of respondents should not be underemphasized. If our sample were entirely representative of the ex-combatant population, this figure of 7% would correspond to close to 5000 former soldiers facing significant challenges in reintegrating into civilian life. In fact, our sample does not include those combatants that failed to reintegrate and elected instead to continue fighting in Liberia or Cote d'Ivoire. Insofar as these migrant fighters represent a source of bias in our sample, the implication is that our estimate of dissatisfaction is a lower bound.[7] Making sense of the factors that explain why some individuals struggle, while most find success, is the main task for the remainder of the paper.

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[5] The assumption underlying factor analysis is that the distinct components share underlying variation, enabling us to use multiple questions to produce a single measure of a latent variable – progress toward reintegration. In a set of robustness checks, we explore whether our empirical results hold for different versions of the dependent variable.

[6] For the empirical results presented in the paper, we use a continuous measure of our index which ranges from 0 to 1. Because the distribution is skewed, we also re-run all of our results using probit models with two different definitions of success: one capturing only the clustering around 1, and the second capturing both middle and high range values on the dependent variables. All of the results presented in the paper hold up with these different specifications.

[7] See Humphreys and Weinstein (2004) for a discussion of possible sources of bias in our sample.

In our empirical analysis we study "exogenous" and "endogenous" determinant of integration success. We identify three categories of exogenous factors that might help to explain patterns of reintegration across combatants: an individual's personal background, the characteristics of the unit or faction in which they fought, and aspects of the community in which they elected to reintegrate.

Personal background characteristics relevant to prospects for reintegration include a number of socio-economic variables such as an individual's ethnic group membership, gender, whether he or she is married, his or her income, and the highest level of education he or she has attained. In addition, we include measures reflective of an individual's personal experience of the war including whether he was abducted into a faction, whether he served as an officer, and whether he believes the war has made the country better off. Finally, we examine the impact of measures relating the individual to the community in which he was surveyed, such as whether he lives now where he lived before the fighting began, and whether he lives in the community in which we was last fighting. With one exception, each of these personal background characteristics is measured using a single question administered during the survey. The variable that measures whether the country is better off is an index constructed using factor weighted loading, which combines an individual's assessments of progress on four fronts: education, health care, employment, and law and order.

It may also be the case that *characteristics of an individual's unit or faction* matter for the likelihood of successful reintegration. Indeed, substantial differences exist in Sierra Leone across the fighting factions, and within them, in terms of their make-up, structure of command and control, and strategies employed during the war (Humphreys and Weinstein 2005). For the purposes of this analysis, we focus on three group characteristics that are likely to affect an individual's likelihood of reintegrating. The first is whether an individual was recruited to his faction by promises of material rewards including diamonds and money. Those who participated in groups driven by material motivations may be less likely to be satisfied with a post-war settlement in which patterns of joblessness and poverty persist. We use individuals' reports of promises made by different factions of money and diamond to construct an index of the extent to which a particular individual was recruited via material incentives.

Second, we examine the impact of fighting with a unit that was highly abusive toward civilian populations. To the extent that individuals committed heinous crimes against non-combatants, one might expect that they would face a more difficult process of gaining acceptance by community members and resettling into a non-military way of life. We constructed a variable that describes the abusiveness of the unit in which an individual fought, by using answers to eight-related questions given by respondents who fought in the same chiefdom, for the same faction, during the same period of the war.[8] The weights derived from a factor analysis were then used to create a single measure, the *extent of civilian abuse*, which ranges from 0 to 1.[9] The third is a measure of the share of

[8] Our proxy for the extent of civilian abuse is not an actual measure of violence committed by fighters during the war. Instead, it captures the strategies and behaviors of the warring factions as reported by the perpetrators—something likely to be correlated with actual levels of abuse.

[9] The measures used to construct the index include three distinct types of questions. First, we include questions that assess the likelihood that an individual in a fighting unit would be punished for stealing, amputating, and raping a civilian if these were done without the expressed order of a commander. Consequently, the responses capture levels of abuse or indiscipline *not* ordered by superiors and hence the extent to which the fighters operated in an environment that was permissive of abuse. Second, we add questions about the ways in which food was collected, including whether food was taken forcibly or through more contractual arrangements from civilians. Finally, the index includes the respondents'

soldiers within an individual's unit who joined the formal demobilization process. This variable seeks to capture underlying social pressures for reintegration within a fighting unit that might help to explain how ex-combatants fared in their communities when the war came to an end.

A third set of variables capture the *characteristics of the communities* in which combatants elected to reintegrate. First, we create a measure of district wealth using data from the Sierra Leone Central Statistics Office. The index – which ranges from 0 to 1 – uses factor analysis to combine measures of typical (imputed) rent payments in each district, an index of food poverty, and a measure of population density. All three use information gathered just as the war came to an end, but before the survey was completed. In addition, we generate data on the percent of soldiers in a chiefdom that went through the formal demobilization process – an effort to capture potential spillover effects from participation in DDR. Finally, we construct a measure of the extent to which local administration has improved at the local level. This variable is the mean response of respondents within chiefdoms to a question about whether governance at the local level has improved since the end of the war.

The endogenous determinants that we examine focus on the *interventions* mounted by the international community to improve the prospects for reintegration. We consider three types of intervention. First, we capture whether an individual participated in the formal demobilization process. 89% of our sample joined the DDR program, while 11% elected to reintegrate on their own. This estimate fits with the Sierra Leone government's assessment that slightly more than 7000 of 79,000 total combatants, did not join the DDR program (NCDDR 2002). We also include a variable that measures whether chiefdoms had a Stop-Gap program – an investment in local public works provided by the UN as the demobilization process unfolded. Finally, we will include a measure of the per capita UN troop presence in each chiefdom, to assess how the provision of security contributes to reintegration (construction of variable in progress).

VI. Exogenous Determinants of Reintegration: Analysis and Results

Table 1 presents a first cut at evaluating the effects of the explanatory variables. We provide the results of bivariate regressions on each of the explanatory variables. In addition, the table includes a tougher test of each relationship – regressions with controls added for average faction-specific effects. If we are to be confident of the independent effect of the explanatory variables, they should survive in regressions that account for the unobserved features of membership in a particular faction that might impact the likelihood of successful reintegration.

(Table 1)

A number of personal background characteristics emerge as significant determinants of successful reintegration, even after controlling for faction fixed effects. In particular, the ethnic group membership of the individual is strongly associated with different patterns of post-war reintegration. Members of the Mende ethnic group – more strongly associated with the CDF

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evaluation of actions undertaken by the group for the benefit of civilian populations, including educational and ideological training. The three components of the index combine negative sanctions (violence, forcible food collection) and positive benefits (security, education) to create an aggregate measure of the extent of civilian abuse. In some cases, the logics that influence the use of force and the provision of public goods may be different. However, results in previous work with this variable are robust to more finely disaggregated indicators, including one that measures only abusive and violent tactics. For more information on this measure, see Humphreys and Weinstein (2005).

faction and the current ruling government – exhibit higher levels of reintegration success. Members of the Temne ethnic group – more strongly associated with the RUF and AFRC – face more difficulties reintegrating.[10] And importantly, these ethnic effects survive the inclusion of faction fixed effects, suggesting that they may help to explain patterns of reintegration within groups as well.

Two other personal characteristics appear to impact progress toward reintegration. Individuals who do not return to their home communities encounter greater challenges in economic and social reintegration. Moreover, individuals from poorer backgrounds – measured by the materials with which the walls of their home before the war were constructed – seem to do better upon exiting the warring factions than those with a higher socio-economic status. Both effects survive the inclusion of faction fixed effects. We find weak or no support for a number of characteristics thought to matter in the reintegration process including age and the gender of combatants. The bivariate relationship suggests a strong link between age and reintegration success, with younger participants likely to have greater problems in reintegrating. We cannot, however, distinguish the effects of *length of time within the units* and age upon entering the DDR process, as these two measures are too highly correlated. The relationship between age and outcomes however is substantially weakened and no longer significant at conventional levels, once we take account of fixed effects. We find no relationship between gender and success in either the simple bivariate or the fixed effects bivariate analyses. A measure for whether an individual was abducted is negatively associated with reintegration, although it disappears when controls are included for membership in a particular faction.

The bivariate results are more striking when it comes to group characteristics. Controlling for faction-level fixed effects, the level of abusiveness of an individual's unit is strongly and negatively associated with successful reintegration. Individuals from non-abusive units exhibit reintegration success levels nearly two standard deviations higher than those from highly abusive units. The size of the coefficient on abuse dwarfs every other bivariate relationship and accounts for about 11% of variation in reintegration success.

Two characteristics of the community in which a combatant resettles appear to matter as well. Individuals who settle in wealthier locations face more difficulty reintegrating, while those who return to communities in which respondents believe local administration has improved substantially experience greater success in gaining acceptance and reintegrating into non-military life. Finally, in bivariate regressions, variables measuring intervention exhibit weak or no relationship to levels of reintegration success. Only the presence of a public works program is associated with better prospects for reintegration, although the effect is small and only weakly significant.

The most important test of these explanatory variables involves evaluating their effects after controlling for a host of confounding factors. We examine the impact of personal, group, and community characteristics before turning to the effect of outside interventions. Multivariate regression results are presented in Table 2.

[10] Although the conventional wisdom is that the CDF was a group of Mende and the RUF composed of Temne, our own survey results suggest that the ethnic differences between groups are vastly overstated. Indeed, the ethnic make-up of the factions is almost identical. What differs is the extent to which sub-units of the faction were ethnically homogenous or heterogeneous. The CDF was composed of largely homogenous units – Mende in the South and Temne in the North and East – while the RUF had largely heterogeneous units in all regions.

(Table 2)

The patterns are consistent across a variety of specifications and models. The most important finding is the statistically strong relationship between the abusiveness of an individual's unit and his prospects for reintegration. The coefficient is twice as large as any other and appears consistent across all models. Controlling for the factions in which individuals fought, those who participated in units that perpetrated high levels of abuse face significant hurdles in gaining acceptance and reintegrating. This may be the result of a community's awareness of the crimes perpetrated by particular individuals or their units; it might also be the case that individuals in abusive units were the most 'hard-core' fighters and have faced difficulty accepting the end of the conflict.[11]

Two other personal characteristics emerge as significant in the multivariate models, although the relative size of their coefficients is small. Members of the Temne ethnic group exhibit lower levels of reintegration success regardless of the faction in which they fought. This may simply reflect a new political reality in Sierra Leone – power has shifted from the All People's Congress, a Temne party that ruled before the war, to the Sierra Leone People's Party, a group widely viewed as more friendly to the Mende. In addition, individuals who elected to return to a community other than their home before the war have faced more difficulty reintegrating. One might have imagined that this effect would be the direct result of faction membership or patterns of behavior exhibited during the war, yet it seems to survive the inclusion of a host of control variables as well. This result should be treated with caution, as the decision not to return home may be a function of an inability to reintegrate. However, whichever way the causal arrow runs, the implication is that those away from their home areas may need greater attention during the implementation of DDR.

It is also apparent that controls included for faction membership are strong and significant in all models. The excluded group is the Sierra Leone Army, which appears to exhibit much higher levels of reintegration success. These SLA members tended to be the most well-educated of all the combatants and had greater opportunities to reintegrate into the professional army in the post-war period. Members of the RUF and AFRC face the most difficulty reintegrating, while individuals who fought with the CDF and WSB also face some challenges (as compared to SLA fighters).

Interestingly, the inclusion of faction fixed effects in column six only marginally improves the explanatory power of the model, suggesting that while significant, these fixed effects are not markedly increasing our ability to explain variation in levels of reintegration success. It is clear that much of the variation goes unexplained. This is likely the result of the significant clustering of observations at very high levels of reintegration success. The model is likely doing little to help us understand why some individuals score a 0.96 and others score a 0.98 on our index of successful reintegration. To examine the impact of this clustering more directly, we ran all of these models

[11] We ran an additional robustness check, employing a variation in the measure of abusiveness. For each individual, we recalculated his/her unit's score for abusiveness based only on the responses of *others* who served in the same chiefdom and faction at the same point in time. In doing so, we sought to check for the possibility that certain types of individuals are more sensitive to or otherwise more willing to report social pathologies, including whether their unit was abusive and whether they are facing difficulty reintegrating. This new measure of abusiveness, while strongly significant, is weaker in size than the original measure in the bivariate regressions. It does, however, disappear in fixed effects and multivariate models. If we replace the 300 observations we lose when switching to this alternative measure with our best measure for cases with missing data (an abuse measure including the individual's self-report), we recover the fixed effects result and the significance of abusiveness in a number of the multivariate specifications.

after transforming our dependent variable into a dummy variable for successful reintegration and the results described above were unchanged.[12]

In Table 3, we undertake some robustness checks of the model, employing variations on the dependent variable. Our goal here is to explore whether there is an underlying variable we can call reintegration success, as the factor analysis assumes, or whether different factors matter for different aspects of reintegration. As a result, we create four new dependent variables, each capturing a different aspect of reintegration: whether the individual found employment, whether he was accepted by family and community initially after the war ended, whether he is accepted today, and whether he accepts the democratic process as an effective avenue for achieving political change.

(Table 3)

The results suggest that different causal processes may be at work for different aspects of reintegration. In particular, the likelihood of an individual finding employment is not all affected by the abusiveness of an individual's unit or whether a combatant elected to return home. Those variables matter only for the degree to which an individual is accepted by family and community members, initially after the war and one year later when the survey was conducted. Our measure of abusiveness is particularly important right after the war ended, and its effect (although strong and significant) seems to diminish over time. One might realistically ask whether the challenges individuals face in gaining acceptance may simply continue to decrease over time as the violence recedes into memory. Further research will be needed to answer this question.

Employment prospects seem to follow a different logic.[13] Those who joined groups based on promises of money and diamonds are less likely to find employment in the post-war period. This may be a reflection of the type of person who is attracted to fight by offers of material gains; such individuals may be lazy, prone to criminality, and not willing to do the hard work required in formal employment. In addition, combatants who resettled in wealthier districts have more difficulty finding employment. This may reflect the large population of urban unemployed in Freetown and the difficulty of finding consistent work in the wealthy diamond-mining districts which have come under increasing control since the end of the fighting. Although not presented here, education levels are significant as explanatory variables for finding employment, although they work in an opposite direction. Controlling for all other factors, those with more than a primary school education are four percentage points less likely to find employment.

It also appears that whether individuals accept the democratic process is driven by a distinct set of factors as well. Those who joined the war for material gains exhibit lower levels of acceptance

[12] We constructed two versions of the dummy variable – one which defined reintegration success broadly as those individuals not at the tail end of the histogram, and the other which narrowly characterized success as being only those at the top tail of the distribution. While our main variables survived both specifications, two additional variables entered significantly with the more stringent definition of success: gender and district wealth, both of which were negatively related to successful reintegration.

[13] The employment variable is coded based on a question about the respondent's occupation, rather than whether individuals have a job. When asked about their occupation, only 12.5% indicate that they have no employment whatsoever. 23% report faming as their primary occupation; 16% are artisans; approximately 5% are traders. If one asked most of these individuals whether they have a job, they would say no. Jobs are thought of as formal sector occupations. A more generous definition of unemployment – to include those in the informal sector and the underemployed – might yield substantially different results.

of the post-war order, perhaps reflective of the very real material benefits many received from the fighting. Surprisingly, individuals from abusive units are *more likely* to believe that democracy is an effective avenue for achieving political change. This embrace of democracy by those who committed the most heinous crimes during the war may be endogenous to the difficulties they have faced in gaining acceptance from their families and communities. Encountering significant hurdles to reintegration, individuals from abusive units may be adjusting their behavior to be more accommodating of the post-war order to gain greater acceptance.

VII. Endogenous Determinants of Reintegration: Analysis and Results

We examine three forms of intervention mounted by external actors to ease the demobilization and reintegration of former fighters, and to prevent a recurrence of fighting: the establishment of formal DDR programs, investments in public works projects, and the maintenance of security through high levels of foreign troop presence. As this final variable is still in construction, we present only the results on the first two.

Table 4 presents results from a reduced form model that examines the effects of intervention controlling for only those factors that were significant in our best model.[14] These controls include whether the respondent was Temne, whether he returned home to his own community, and fixed effects for the factions.

(Table 4)

Evidence from Sierra Leone does not support the hypothesis that participation in a DDR program increases the level of reintegration success at the individual level. There are no statistically significant differences between reintegration success across combatants who participated and did not participate in formal demobilization programs. Moreover, it does not appear that participation in DDR programs reduces the impact of being from an abusive groups on the prospects for reintegration. This non-result on DDR participation is important and deserves further discussion. In interpreting it as evidence that the DDR process had no effect at the individual-level, we face two challenges.

The first is that a real effect may exist but be obscured by selection effects. In particular, the population of combatants who participate in DDR may be systematically different from those who elected to reintegrate without external assistance. It may be that DDR took on the very difficult cases – such as members of the RUF – while individuals who fought with the CDF (which was widely seen as victorious in the conflict) decided to return home on their own. These differences if unobserved and not controlled for in our models might explain the non-result.

There are statistical approaches we can employ to look for this effect: controlling for selection variables, using propensity matching estimators, and the use of instrumental variables estimation.

[14] In this final section, we return to the dependent variable used in the previous section, an index of successful reintegration. Importantly, the non-finding on participation in DDR is not sensitive to changes in the dependent variable.

We can take a first cut at looking for differences across those who joined DDR and those who did not by comparing participation rates across a range of independent variables. These results are presented in Table 5.

(Table 5)

The most striking finding is that there are no real differences in participation rates across the major factions. If the DDR program was taking on the hardest cases, we would have expected to find CDF combatants enrolling in DDR programs at a much lower rate than the AFRC/RUF. There is no evidence to support that argument. At the same time, it appears that members of the Temne ethnic group do enroll in DDR at higher rates, and the analysis in previous sections has suggested that Temne do face a more difficult path to reintegration. The strongest finding is that people from the Southern region participate at much lower rates – a full 22 percentage points. So if individuals from the South have an *ex-ante* easier time reintegrating and DDR focused on those in the East and North with more difficult prospects, this might explain the non-result on our variable for participation.[15]

But these factors are observable differences across individuals that we can control for in multivariate regressions. Including controls for ethnic group membership, faction, and region does not seem to change the general finding. Still participation in DDR does not seem to be associated with higher levels of reintegration success.

This finding is supported by results from propensity matching estimators using these same determinants of selection into the DDR programs. Propensity matching indicators estimate, for each individual, a probability of entering DDR based on all relevant available data. Based on these probabilities, the method matches pairs of individuals that have the same estimated propensity of joining, but one of whom did and the other of whom did not join. If our estimates for the propensity of joining are accurate, then for any pair matched in this way, we can treat the difference in reintegration success for those that do join DDR and those that do not, as a result of the fact of joining.

We employ this technique on our sample of respondents, using as predictors of joining DDR the age, gender, wealth, educational attainment, factional affiliation, and their location in 2000 at the end of the war. Together these account for just 7% in the variation in affiliation with DDR. Among this sample for which we have full data on all of these determinants (947 observations), those that went to DDR recorded an average reintegration score of .96, those that did not go also had an average reintegration score of .96, with the difference between the two groups being zero. After matching observations based on propensity scores, the difference is still zero. This finding is robust to variation in our measures of reintegration.

The third and best strategy for dealing with unobserved differences between participants and non-participants is the use of an instrumental variable to predict participation in a two-stage model. We are currently constructing an instrument – the distance between where an individual fought in the closing stages of the war and the closest DDR site – which is likely related to whether an

[15] We also checked to see whether the abusivness of an individual's unit varied in systematic ways between those who joined DDR and those who did not. Although there is a small difference, it is not statistically significant at conventional levels.

individual joined, but not causally important for understanding the prospect of reintegration success. This variable is currently in construction, so results are not yet available.

The second challenge to the no-impact interpretation of our result draws on the argument that DDR programs operate on non-participants as well as on participants. Consequently, the impact of programs will not be observed at the level of variation between those that did and those that did not participate. Arguably, the fact that close to 90% of combatants did participate may generate positive spillovers in communities that ease the reintegration of others. We test explicitly for these positive spillover effects and find weak evidence in support of this hypothesis (presented in Table 4). This significant result suggests an agenda for future research that charts mechanisms through which massive external assistance generates positive benefits that accrue to non-participants as well as direct beneficiaries.

Finally, the data do not suggest the combatants living in chiefdoms that had public works programs did better in the reintegration process than those in chiefdoms without stop gap projects. As with participation in DDR, this non-result should be interpreted with caution. UN-funded public works programs may have been initiated in the communities facing more difficult challenges in reintegration, offering one possible explanation for the non-finding.

While the best strategy for isolating precise causal impacts involves the use of randomization to establish treatment and control groups, our analysis demonstrates that rigorous and representative survey work can offer useful insights into both the determinants of reintegration success at the individual level and the impact of external programs on reintegration.

VIII. Conclusion

With the growing involvement of external actors in post-conflict situations, increasing attention is being dedicated to the challenges of peace-building. The disarmament, demobilization, and reintegration of combatants is a central component of efforts to reestablish legitimate governance and prevent the recurrence of conflict. The demobilization of competing factions sends credible signals of the intent of factions to commit to a peace process and programs that support reciprocal demobilization can aid in the management of spoilers and increase the stake of former fighters in the post-war political and economic order.

In spite of nearly a decade of involvement in demobilizing warring factions, there is little evidence about the factors that explain whether individuals can successfully reintegrate after conflict and the precise causal impact of externally-funded programs to reintegrate combatants. Instead, the scant literature on demobilization has focused attention on details of program design and implementation in an effort to come to grips with the challenges that practitioners have faced on the ground.

This paper charts a new course for research on post-conflict reintegration and international efforts to disarm, demobilize, and reintegrate combatants. In particular, it proposes shifting the analysis from the macro to the micro. To design effective DDR programs that contribute to peace-building, we need rigorous research on the factors that explain whether combatants reject their factional affiliations, reintegrate into the community and the economy, and embrace the post-war political order. We present the results of a large-N survey of combatants in Sierra Leone which allowed us to track the progress of DDR participants and non-participants in the post-war period.

The findings provide insights useful to practitioners of post-conflict reconstruction. Specifically, the growing chorus in support of specially targeted programs to help female combatants and those recruited as children appear to rest on shaky empirical grounds. Women and young combatants face no more difficult reintegrating once other potential factors are taken into account. Again, this finding should be interpreted with caution, as no data was gathered from combatants who were *still* children when the survey was enumerated.

Reintegration success, the evidence suggests, is also not directly related to the socio-economic characteristics of former fighters. Instead, a combatant's experience of the war – in particular, the extent to which he engaged in abusive practices – is the most important determinant of reintegration success. Individuals who perpetrated widespread human rights abuses face significant difficulty in gaining acceptance from their families and communities after the war. Prospects for reintegration are marginally worse when individuals do not return to their home communities as well.

Perhaps the most surprising result is that international interventions designed to aid the demobilization process appear to have only weak impacts on the likelihood of successful reintegration. Non-participants in DDR do just as well as those who entered the formal demobilization program. But there is some evidence that non-participants may have been aided in reintegration by the programs that targeted other combatants, creating community-level effects that paved the way for their return as well.

Although this paper cannot definitively measure the impact of these programs, the weak results may suggest that other factors – measurable only at the country-level – may be far more important for determining the path of reintegration. In particular, the fact that the war in Sierra Leone ended decisively, with a major military intervention by the British, may be consequential for the high rates of reintegration success both among soldiers formally demobilized and those who returned home on their own.

With UN operations now the norm in post-conflict environments, the findings presented here suggest the need for greater attention to systematic data collection and evaluation. The most important determinant of an individual's prospects – the abusiveness of his unit – is not directly observable to program designers. To effectively deal with potential spoilers, implementing agencies must know more about how combatants experienced the war in order to better target their programs. At the same time, given the weak findings about the impact of external programs on reintegration success, more systematic tracking of participants and non-participants *across countries* could help to shed greater lights on the determinants of successful disarmament, demobilization, and reintegration.

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Figure 1: Distribution of Reintegration Success

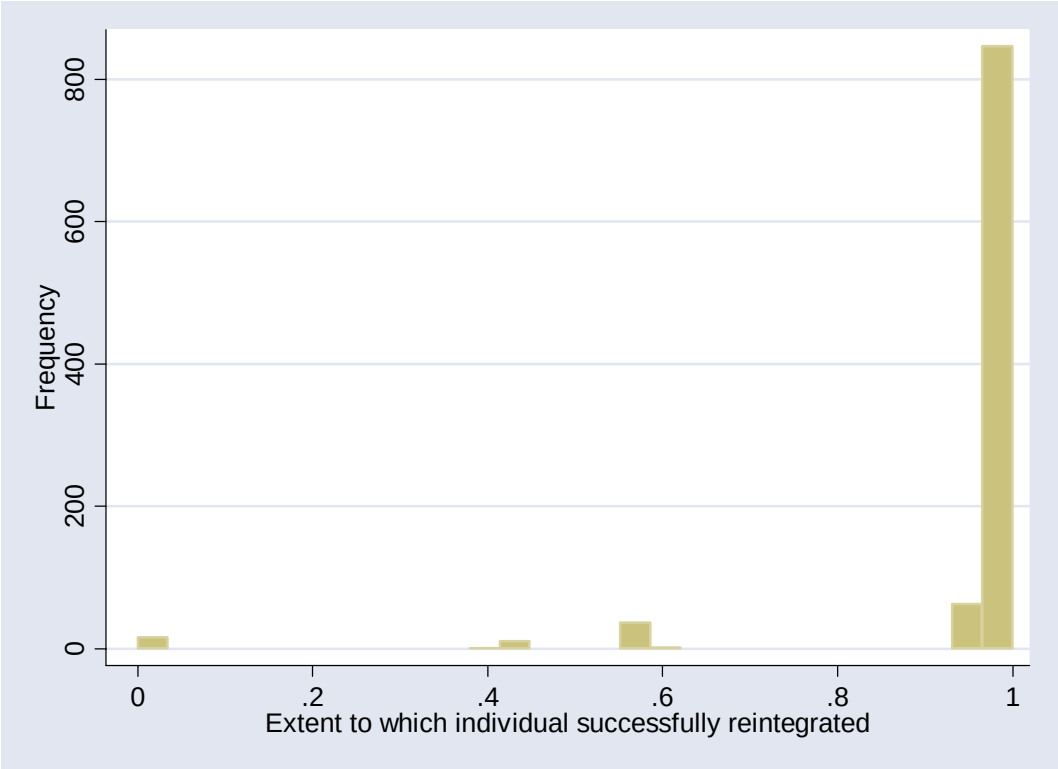

Table 1: Determinants of Reintegration Success: Bivariate Relationships With and Without Fixed Effects

Individual Characteristics

Variable	Coefficient	t-statistic	N	R^2	Model
Age Joined	0.002	[3.29]***	973	0.01	OLS
	0.001	[1.52]	964	0.06	FE
Mende	0.024	[2.32]**	976	0.01	OLS
	0.027	[3.20]***	967	0.07	FE
Temne	-0.051	[4.90]***	976	0.02	OLS
	-0.045	[5.08]***	967	0.07	FE
Married	0.024	[2.29] **	974	0.00	OLS
	0.014	[1.33]	965	0.06	FE
Female	-0.053	[1.64]	968	0.01	OLS
	-0.013	[0.43]	959	0.06	FE
Abducted	-0.056	[3.18]***	976	0.03	OLS
	0.008	[0.51]	967	0.06	FE
Not at Home	-0.043	[3.69]***	966	0.02	OLS
	-0.024	[3.14]***	957	0.06	FE
Officer	-0.041	[1.61]	976	0.01	OLS
	-0.036	[1.52]	967	0.06	FE
Educated	-0.014	[1.41]	976	0.00	OLS
	-0.010	[1.16]	967	0.06	FE
Last Fought	0.024	[2.19]**	976	0.01	OLS
	0.012	[1.29]	967	0.06	FE
Poor	0.030	[3.79]***	975	0.01	OLS
	0.021	[2.52]**	966	0.06	FE
Better Off	0.024	[0.92]	956	0.00	OLS
	0.012	[0.56]	947	0.06	FE

Group Characteristics

Variable	Coefficient	t-statistic	N	R^2	Model
Material	-0.051	[1.80]*	976	0.00	OLS
	-0.005	[0.14]	967	0.06	FE
Abusiveness	-0.247	[5.87]***	959	0.11	OLS
	-0.244	[4.35]***	950	0.11	FE
Percent Demobilized (Unit)	-0.015	[0.69]	976	0.00	OLS
	-0.016	[0.85]	967	0.06	FE

Community Characteristics

Variable	Coefficient	t-statistic	N	R^2	Model
District Wealth	-0.029	[1.02]	890	0.00	OLS
	-0.048	[2.03]**	884	0.07	FE
Percent Demobilized (Chiefdom)	0.020	[0.49]	976	0.00	OLS
	0.031	[0.92]	967	0.06	FE
Local Conflict Resolution	0.137	[2.57]**	976	0.01	OLS
	0.098	[2.11]**	967	0.06	FE

Interventions

Variable	Coefficient	t-statistic	N	R^2	Model
DDR	-0.007	[0.49]	974	0.00	OLS
	-0.006	[0.47]	965	0.06	FE
Public Works	0.020	[1.13]	976	0.00	OLS
	0.032	[1.86]*	967	0.07	FE
UN Troops	N/A				
	N/A				

Notes: Each row in this table presents the results of a bivariate regression. All regressions allow errors to be clustered geographically. For each independent variable, we report results for both OLS and fixed effects models (with fixed effects for factions).

Table 2: Multivariate Results with Clustering by Chiefdom

	(1) OLS	(2) FE	(3) OLS	(4) FE	(5) OLS	(6) FE
Age Joined	0.001	0.001	0.001	0.000	0.001	0.001
	[1.68]*	[1.17]	[1.20]	[1.01]	[1.36]	[1.15]
Temne	-0.046	-0.045	-0.032	-0.034	-0.023	-0.026
	[5.01]***	[4.96]***	[3.44]***	[3.40]***	[1.84]*	[1.99]*
Female	-0.023	-0.014	-0.005	0.003	-0.014	-0.007
	[0.77]	[0.43]	[0.20]	[0.13]	[0.55]	[0.24]
Abducted	-0.034	0.016	0.015	0.040	0.020	0.050
	[2.47]**	[0.97]	[0.83]	[1.57]	[0.89]	[1.67]
Officer	-0.041	-0.034	-0.031	-0.027	-0.032	-0.026
	[1.58]	[1.36]	[1.37]	[1.20]	[1.34]	[1.12]
Not at Home	-0.027	-0.023	-0.015	-0.015	-0.014	-0.013
	[3.61]***	[3.43]***	[2.31]**	[2.42]**	[1.86]*	[1.80]*
Material Incentives	-0.021	0.004	0.034	0.040	0.033	0.041
	[0.68]	[0.13]	[1.27]	[1.42]	[1.20]	[1.34]
RUF		-0.071		-0.098		-0.122
		[3.81]***		[3.76]***		[3.76]***
AFRC		-0.089		-0.086		-0.103
		[1.96]*		[2.18]**		[2.05]**
CDF		0.004		-0.064		-0.073
		[0.28]		[3.99]***		[3.53]***
WSB		-0.049		-0.063		-0.060
		[1.66]		[2.10]**		[1.85]*
Not in a Faction		-0.032		-0.067		-0.060
		[1.14]		[4.06]***		[3.62]***
Abusiveness			-0.240	-0.243	-0.251	-0.241
			[4.28]***	[3.68]***	[3.87]***	[3.42]***
District Wealth					-0.016	-0.036
					[0.94]	[1.63]
Local Conflict					0.001	0.009
					[0.02]	[0.24]
Constant	1.009	1.009	1.002	1.062	1.008	1.073
	[29.77]***	[39.53]***	[36.81]***	[33.09]***	[24.91]***	[20.82]***
Observations	955	946	938	929	858	852
R-squared	0.06	0.08	0.12	0.13	0.13	0.15

Note: *significant at 10%; ** significant at 5%; *** significant at 1%. Robust t-statistics in brackets. Faction fixed effects are included in the fixed effects models. Sierra Leone Army is the excluded category. All models allow errors to be clustered geographically.

Table 3: Robustness Checks on Dependent Variables

	(1) Employment?	(2) Accepted initially?	(3) Accepted today?	(4) Accept democratic process?
	Probit	FE	FE	FE
Age Joined	-0.000	0.001	0.000	0.000
	[0.19]	[1.49]	[1.11]	[0.52]
Temne	0.011	-0.035	-0.008	0.003
	[0.33]	[2.00]*	[0.69]	[0.13]
Female	-0.060	-0.023	-0.005	0.009
	[1.14]	[0.66]	[0.26]	[0.39]
Abducted	-0.046	0.057	0.038	-0.003
	[1.12]	[1.93]*	[1.61]	[0.09]
Officer	-0.053	-0.034	-0.021	0.026
	[1.43]	[1.25]	[1.33]	[1.09]
Not at Home	0.013	-0.017	-0.009	0.020
	[0.48]	[1.53]	[1.80]*	[1.23]
Material Incentives	-0.077	-0.055	0.018	-0.100
	[2.05]**	[1.31]	[0.85]	[1.69]*
Abusiveness	0.020	-0.466	-0.160	0.092
	[0.46]	[4.77]***	[2.72]***	[1.87]*
District Wealth	-0.101	-0.024	-0.035	0.040
	[2.35]**	[0.87]	[2.25]**	[1.30]
Local Conflict	0.168	0.049	0.005	0.027
	[1.58]	[0.96]	[0.20]	[0.38]
RUF	-0.040	-0.105	-0.086	-0.021
	[1.34]	[2.03]**	[3.11]***	[0.50]
AFRC	-0.007	-0.095	-0.077	-0.022
	[0.16]	[1.22]	[1.84]*	[0.30]
CDF	0.018	-0.083	-0.054	-0.024
	[0.46]	[2.76]***	[2.61]**	[0.57]
WSB	-0.038	-0.052	-0.032	0.024
	[0.48]	[0.74]	[1.76]*	[0.40]
Not in a Faction	-0.017	-0.078	-0.042	-0.005
	[0.48]	[2.66]**	[2.94]***	[0.11]
Constant		1.086	1.070	0.628
		[17.35]***	[32.21]***	[7.40]***
Observations	894	893	889	867
R-squared		0.23	0.13	0.02

Note: *significant at 10%; ** significant at 5%; *** significant at 1%. Robust z-statistics or t-statistics in brackets. Column 1 reports the results of probit estimation with marginal coefficient estimates (at mean values for the explanatory variables). Columns 2-4 reports multivariate regression models. Faction fixed effects are included in the models. Sierra Leone Army is the excluded category. All models allow errors to be clustered geographically.

Table 4: Impact of Interventions on Reintegration

	(1)	(2)	(3)	(4)
Abusiveness	-0.225	-0.190	-0.223	-0.219
	[3.70]***	[3.59]***	[3.77]***	[3.69]***
DDR Participant	-0.006	0.004	-0.019	
	[0.46]	[0.50]	[1.26]	
Abusiveness* DDR Participant		-0.044		
		[0.63]		
Percent Demobilized			0.057	
			[2.19]**	
STOPGAP				0.011
				[0.74]
Constant	1.084	1.076	1.048	1.074
	[43.07]***	[64.36]***	[36.76]***	[53.80]***
Observations	939	939	939	940
R-squared	0.12	0.12	0.12	0.12

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust t statistics in brackets. Fixed effects for factions included in all models and errors are clustered geographically. Controls also include Temne and Home.

Table 5: Rates of Participation in DDR

		Rate of Participation in DDR	Difference (p-value)
Gender	Male	0.86 (920)	0.05 (0.14)
	Female	0.91 (111)	
Faction	AFRC/RUF	0.88 (419)	0.03 (0.21)
	All Others	0.85 (620)	
Faction II	CDF	0.87 (552)	0.02 (0.48)
	All Others	0.86 (487)	
Ethnic Group I	Temne	0.91 (207)	0.06** (0.02)
	All Others	0.85 (832)	
Ethnic Group II	Mende	0.85 (545)	0.02 (0.27)
	All Others	0.88 (494)	
Education	Above Primary Education	0.85 (429)	0.02 (0.29)
	Primary or Below	0.87 (610)	
Poverty Level	Poor (Mud Walls)	0.89 (711)	0.09*** (0.00)
	Non-Poor	0.81 (328)	
Officer	High Ranking	0.93 (98)	0.07* (0.06)
	Low Ranking	0.86 (801)	
Region	South	0.66 (95)	0.22*** (0.00)
	All Other Regions	0.89 (944)	

Table Notes: Column 4 reports the p-value of a test of the null hypothesis that the participation rates are equal across the two categories. *significant at 10%; ** significant at 5%; significant at 1%.