Robustness Tests

We are conscious that our conclusions are derived from a statistical model which itself depends on many assumptions—assumptions regarding the appropriate weighting of cases, the relevant set of control variables, and modeling assumptions regarding the set of admissible control cases and the particular specifications used. On all of these fronts, there is scope for reasonable disagreement as to what constitutes the best model. In light of this, we run various sensitivity checks to explore the robustness of our results.

The attached table replicates our core models (from Table 2) subject to a number of alternative specifications. **Model I** replicates our core model but excludes all of the control variables. Our control variables have been selected to capture features that we expect a priori to be associated with recruitment, but which are less motivated theoretically than the main explanatory variables we discuss. We expect these variables to capture residual variation but, with the exception of the relationship between age and political marginalization and political alienation, do not expect our results to depend strongly on these. Model I examines the extent to which this is the case.

Models II and III examine the sensitivity of our results to the sampling weights that are employed in the analysis. We have employed sampling weights in order to take account of the relatively small non-combatant sample and to take account of the fact that our civilian frame was based on our ex-combatant frame. We applied no differential weights to our ex-combatant sample under the assumption that our original sampling frame was correct. In practice, we know that our ex-combatant sampling frame is imperfect since it was produced based on incomplete numbers provided by the NCDDR, although we do not have access to a more reliable frame. To examine the extent to which our results depend on the

particular weightings used, we study two additional models. The first employs no weighting corrections at all. The second employs weights based on an ex-combatant frame subsequently accessed from an FAO datasource. This frame is substantially different than ours, but upon qualitative investigation, appears significantly flawed, and correlates poorly with more complete but more highly aggregated data provided by NCDDR. In some cases, it reports ex-combatant numbers larger than the adult population of a chiefdom. On a priori grounds, neither of these alternative weighting schemes is preferable to that used in our analyses. Nevertheless, the Table reports how our results are affected by the use of these alternative weighting schemes.

Model IV examines a different concern relating to the manner in which we define our control group. Our control group is defined as all individuals that did not join a group whether or not they were approached. Since, in approximately one third of cases non-abducted recruits were not approached but rather, by their own report, went looking for the group, this approach appears reasonable. However, the interpretation of some of our variables, most importantly the offers of material gains, appears sensitive to this interpretation. Since our measure records actual offers rather than expectations of benefits, it necessarily takes a value of 0 for all those non-joiners that were not approached. To examine the extent to which our results are dependent on including this set of individuals in the control category, Model IV reports the results that obtain when they are excluded.

Finally, **Model V** responds to a concern associated with one of our stronger results. We have found that political alienation is associated with voluntary and involuntary recruitment to both groups, and most strongly with recruitment to the CDF. Although we control for age (entering a linear and quadratic term), there may still be concerns that this measure is capturing the different age profile of recruits relative to the general population.

To check for this possibility, this final model replicates our core model but includes an interaction term using a dummy variable that takes a value of 1 for all individuals aged under 35 in 2003.

Results

In all specifications, CDF membership continues to be associated with poverty and with low levels of education. The link between poverty and abductees remains qualitatively constant, but is statistically weakened in two specifications and strengthened in two whereas the link with education remains qualitatively constant and statistically strong. The link between poverty and RUF recruitment remains qualitatively constant but significance is lost in specification IV. There exists (weak) evidence for a relationship between education and RUF volunteer recruitment, a feature that is absent from our core specification. Broadly, across all specifications we continue to find linkages between deprivation and membership in both the RUF and the CDF, in particular the results from our core specification appear relatively robust to quite radical changes in weights and specification.

Across all specifications, we continue to find that SLPP supporters are systematically less likely to become RUF voluntary recruits although significance is lost in Model II. In all cases, we continue to find that political alienation is associated with recruitment to the CDF, the relation for abductees loses significance in one specification. Most importantly, evidence from the final specification reveals that this relationship is true specifically of adults: political alienation is not simply a proxy for youth. The already weak relationship between political alienation and RUF recruitees is weakened in all specifications. This appears to be among the least robust of our findings.

We continue to find evidence in all specifications that monetary offers predict CDF membership. We lose the relationship for abductees however in two specifications, although as noted in the text this relationship is subject to interpretational concerns. In our main specification, we did not have a significant relationship between monetary offers and RUF volunteers. According to Models II and III, this non-finding is sensitive to the weights employed. Using no weights, or the FAO weights there is evidence for money as a motivation for RUF voluntary recruitment.

Our results on security concerns are qualitatively unchanged across all five alternative specifications. Beliefs about safety predict voluntary recruitment into both groups, but do not predict abduction. Importantly, this result is held even in model IV where we use data only on individuals that were approached and thus exclude individuals that were possibly further from the line of fire.

Finally, turning to measures of community cohesion, we continue to find that individuals without prior friends and relatives in the organizations were most vulnerable to abduction while the much smaller group of individuals with friends in the RUF were more likely to join voluntarily. In our core specification, we did not have strong evidence that friendship predicted participation in the CDF. Although there was a positive relationship it was not statistically significant. In three of the five specifications, this positive relationship attains significance indicating a dependency of this result on the choice of control and the weighting system used. This evidence, though absent from our core specification, is consistent with prior evidence that recruitment among the CDF was organized along community lines—a finding that is replicated for our accessibility measure across all robustness specifications. Finally, we note that the already weak relationship between inaccessibility and abduction is lost in all five specifications.

These robustness results increase our confidence in our main findings, but they also highlight elements of our analysis that appear more fragile. Grievance variables continue to be strong predictors of CDF recruitment and of vulnerability to abduction. Safety concerns also continue to be a major incentive for participation, although we are left with less confidence in the effects of our measure of material offers. We continue to find evidence for community cohesion as a predictor for CDF volunteers and social ties for RUF volunteers, while the robustness checks suggest that we may have been too quick to discount the impacts of friendship in groups for the CDF—a factor that appears sensitive to the choice of weights used for the analysis. In a number of the tests provided here, we found significant relationships where we did not find any before. While informative, however, we maintain a skepticism about these results for the reasons enumerated earlier, relying instead on our more fully motivated core specifications in the paper.

Table 1 Robustness

	I			II			III			IV			V		
Variation	*No Control Variables*			*No Sampling Weights*			*Sampling weights based on FAO Frame*			*Control group restricted to individuals that were approached*			*Including No Party Interaction term*		
Outcome	*Abducted*	*RUF Volunteer*	*CDF Volunteer*	*Abducted*	*RUF Volunteer*	*CDF Volunteer*	*Abducted*	*RUF Volunteer*	*CDF Volunteer*	*Abducted*	*RUF Volunteer*	*CDF Volunteer*	*Abducted*	*RUF Volunteer*	*CDF Volunteer*
GRIEVANCES															
H_1 Mud Walls	0.46	1.2	1.45	0.54	0.81	0.74	1.32	2.61	2.9	0.64	0.67	1.31	1.032	1.358	1.609
	[0.46]	[0.66]*	[0.58]**	[0.25]**	[0.46]*	[0.28]***	[0.48]***	[0.48]***	[0.88]***	[0.61]	[0.87]	[0.55]**	[0.425]**	[0.532]**	[0.562]***
H_1 Lack of Education	1.06	0.29	0.5	0.41	0.53	0.64	1.48	-0.64	1.09	1.42	0.92	1.82	1.265	0.578	0.797
	[0.31]***	[0.48]	[0.26]*	[0.17]**	[0.29]*	[0.18]***	[0.37]***	[0.39]	[0.31]***	[0.36]***	[0.54]*	[0.35]***	[0.300]***	[0.375]	[0.301]**
H_2 Supported the SLPP	0.24	-3.21	-0.17	-0.17	-0.7	0.73	0.96	-3.17	-0.48	-1.32	-2.72	-0.98	-0.852	-1.847	-0.592
	[0.52]	[1.72]*	[0.59]	[0.34]	[0.60]	[0.33]**	[0.47]**	[0.95]***	[0.87]	[1.11]	[1.18]**	[0.86]	[0.676]	[0.741]**	[0.582]
H_3 Supported No Party	1.69	0.5	1.11	0.67	0.47	0.79	1.57	0.01	3.14	0.95	1.18	1.63	2.183	1.312	1.77
	[0.40]***	[0.46]	[0.44]**	[0.28]**	[0.48]	[0.34]**	[0.55]***	[0.43]	[0.67]***	[0.70]	[0.84]	[0.74]**	[0.832]**	[0.786]	[0.530]***
SELECTIVE INCENTIVES															
H_4 Offered Money	1.81	-0.51	4.02	1.67	1.32	1.93	0.93	3.82	6.06	1.11	0.57	3.56	2.4	1.299	3.211
	[0.65]***	[1.05]	[0.67]***	[0.46]***	[0.69]*	[0.81]**	[0.81]	[1.16]***	[2.05]***	[0.83]	[1.13]	[0.94]***	[0.722]***	[1.065]	[0.637]***
H_5 Felt Safer Inside Group	-1.11	1.58	2.95	-0.41	0.89	1.18	-1.73	5.09	3.43	-1.17	2.31	3.43	-1.385	2.869	2.325
	[0.38]***	[0.52]***	[0.36]***	[0.15]***	[0.25]***	[0.16]***	[0.32]***	[0.92]***	[1.42]**	[0.47]**	[0.86]***	[0.46]***	[0.429]***	[0.745]***	[0.303]***
COMMUNITY COHESION															
H_6 Friends in Group	-32.14	4.45	0.8	-36.64	3.63	1.35	-35.04	9.86	1.07	-33.69	5.63	1.31	-39.538	6.676	0.62
	[0.91]***	[1.11]***	[0.42]*	[.]***	[0.92]***	[0.35]***	[0.76]***	[1.53]***	[0.49]**	[1.13]***	[0.97]***	[0.81]	[1.191]***	[0.997]***	[0.501]
H_7 Villages Inaccessible	0.02	0.04	0.03	0	0.01	0.03	0	-0.03	0.04	-0.01	0.01	0.09	-0.004	0.009	0.03
	[0.01]	[0.02]*	[0.01]*	[0.01]	[0.01]	[0.01]***	[0.01]	[0.02]	[0.01]***	[0.02]	[0.03]	[0.03]***	[0.016]	[0.020]	[0.014]**
MINOR															
Aged < 30													2.018	0.875	-0.252
													[0.733]***	[0.991]	[0.781]
Aged < 30 & Supported no Party													-1.848	-0.456	-0.135
													[0.911]**	[0.852]	[0.648]
Observations	1059			1031			1032			945			1032		

Controls omitted, Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%