# SUPPLEMENTAL APPENDIX for
## The Puzzle of Militia Containment in Civil War

## Contents

# Descriptive Analyses

Table 1: Summary Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Median | Max |
|---|---|---|---|---|---|---|
| Militia Containment | 238 | 1.55 | 0.75 | 1 | 1 | 3 |
| Weak Rebels (logged) | 232 | 3.18 | 2.14 | -1.33 | 2.73 | 7.38 |
| RPR | 216 | 0.99 | 0.3 | 0.28 | 1.08 | 1.58 |
| Shared Ethnic | 234 | 0.15 | 0.36 | 0 | 0 | 1 |
| Criminal | 227 | 0.09 | 0.29 | 0 | 0 | 1 |
| Peasant | 223 | 0.33 | 0.47 | 0 | 0 | 1 |
| Semiofficial | 238 | 0.38 | 0.49 | 0 | 0 | 1 |
| Joint Membership | 238 | 0.13 | 0.34 | 0 | 0 | 1 |
| Contiguous War | 238 | 0.68 | 0.47 | 0 | 1 | 1 |
| GDP/Capita (logged) | 238 | 7.47 | 0.98 | 5.5 | 7.36 | 9.99 |
| Separatist | 238 | 0.45 | 0.5 | 0 | 0 | 1 |
| Polity | 238 | -0.91 | 6 | -9 | 0 | 9 |
| Number of Militias | 238 | 5.81 | 6.08 | 1 | 4 | 22 |

Table 1 provides descriptive statistics for all variables reported in the main specifications. The median containment value is 1 (94/156 groups), though a healthy portion of militias were coded with a 2 (34/156) or 3 (28/156). Logging the troop ratio variable helped reduce the skew, such that the mean is 3.18 and median is 2.73 with a standard deviation of 2.14 (negative values indicate that the rebels were stronger than the government in terms of troop strength). The distribution of *RPR* values was relatively normal.

Table 2 is a matrix of Pearson's correlations for all independent variables in the main analysis. None of these pairwise correlations suggest problematic levels of multicollinearity. The highest correlation is between *Semiofficial* and *Peasants*, but at 0.49 this multicollinearity is still not severe. Most importantly, *RPR* and *Weak Rebels* are not highly correlated.

Table 2: Correlation Matrix

| | Weak Rebels | RPR | Shared Ethnic | Criminal | Peasant | Semiofficial | Joint Mem. | Cont. War | GDP/cap. | Sep. | Polity | Num. Mil. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weak Rebels | 1 | | | | | | | | | | | |
| RPR | 0.19 | 1 | | | | | | | | | | |
| Shared Ethnic | -0.1 | -0.21 | 1 | | | | | | | | | |
| Criminal | 0.09 | 0.05 | -0.06 | 1 | | | | | | | | |
| Peasant | 0.22 | 0.12 | -0.12 | -0.04 | 1 | | | | | | | |
| Semiofficial | 0.31 | 0.15 | -0.18 | 0.05 | 0.49 | 1 | | | | | | |
| Joint Mem. | 0.03 | -0.04 | 0.02 | 0.11 | -0.11 | 0.05 | 1 | | | | | |
| Cont. War | -0.46 | -0.14 | 0.1 | -0.04 | -0.03 | -0.05 | 0.17 | 1 | | | | |
| GDP/cap. | 0.34 | -0.28 | 0.03 | 0.03 | 0.03 | 0.19 | 0.04 | -0.3 | 1 | | | |
| Sep. | 0.67 | 0.33 | -0.09 | 0.07 | 0.2 | 0.23 | -0.08 | -0.46 | 0.29 | 1 | | |
| Polity | 0.02 | 0.03 | -0.08 | -0.07 | 0.19 | 0.13 | -0.09 | -0.04 | 0.25 | 0.03 | 1 | |
| Num. Mil. | 0.27 | 0.04 | -0.06 | 0.09 | -0.15 | -0.18 | 0.03 | -0.42 | -0.09 | 0.2 | -0.4 | 1 |

In order to illustrate empirically that there is a conceptual distinction between *de jure* state-militia relationships (i.e. informal vs semiofficial groups) and my containment measure (a type of *de facto* interaction), I ran a multinomial logit with containment as the dependent variable and semiofficial as the sole independent variable (with robust clustered standard errors on the conflict). I report the results in Table 3. Relative to groups at low levels of containment, semiofficial groups are no more likely to be highly contained ($p < 0.115$), but are more likely to be contained at middling levels ($p < 0.01$). Although these concepts seem to be related, these statistical patterns suggest that they are not proxies for one another. In the main specifications, I also control for semiofficial status, which should absorb any "proxy" effect and allow

Table 3: Multinomial Logit- *De Jure* and *De Facto* Relationships (Baseline: Containment=1)

| Dependent Variable: | Model 1a Moderate | Model 1b High |
|---|---|---|
| Semiofficial | 0.844** | 0.898 |
| | (0.315) | (0.57) |
| Constant | -1.238*** | -1.715*** |
| | (0.318) | (0.652) |
| Observations | 238 | 238 |
| Pseudo-$R^2$ | 0.023 | 0.023 |
| Log-pseudolikelihood | -218.559** | -218.559** |

**Notes:** *p<0.1; **p<0.05; ***p<0.01; Cluster-robust standard errors reported in parentheses.

my independent variables of interest to vary with *Containment* while holding the relationship between semiofficial status and *Containment* constant. Thus, despite some degree of overlap my models are not simply explaining variation in *de jure* state-militia relationships.

# Additional Specifications and Econometric Checks

Table 4 provides the coefficient estimates from bivariate models that only include my independent variables of interest (Models 2-5) as well as the original ordered logit coefficient estimates for the model specifications reported in Table 1 in the main analysis (Models 6-8). Without controlling for any other factors, each of my independent variables are positive and highly statistically significant predictors of militia containment. Turning to the ordered logits, Brant statistics suggest that the *Weak Rebels* variable violates the parallel regressions assumption ($p < 0.051$ in Model 6 and $p < 0.041$ in Model 8). In Model 7, neither of the independent variables of interest violate the parallel regression assumption, but *Joint Membership* does. If we ignore these violations, both *Weak Rebels* and *RPR* remain are highly statistically significant even when controlling for a variety of PGM and country-level factors.

Table 5 provides additional model specifications to further evaluate the robustness of the results. In Models 9 and 10, I add a binary indicator for whether the militia received foreign support, according to the PGMD (Carey, et al. 2013). No highly contained militias received foreign support, so I could not estimate these models, but the effect of foreign support is insignificant in the logit models estimating whether the group was contained at all, and the main results remained the same. In Models 11-12, I replicate the models with PGM-level controls and add controls for the number of battle deaths (Lacina and Gleditsch 2005), whether the rebels used guerrilla tactics (Kalyvas and Balcells 2010), and the duration of the war in years. None of these additional controls are statistically significant and *Weak Rebels* remains significant and positive at the 99% level. *RPR* has a statistically significant effect on the probability of any containment, but loses significance in the high containment only model (Model 12). In Models 13-14, I include the full set of controls. This weakens the precision of the coefficient estimates for the main independent variables, and *RPR* remains insignificant in Model 14, but this is likely due to overparameterization in the models.

Since my main models include variables that violate the parallel regressions assumption,

Table 4: Bivariate Results and Ordinal Logistic Regressions

| Dependent Variable: | Model 2 (L-M/H) | Model 3 (L/M-H) | Model 4 (L-M/H) | Model 5 (L/M-H) | Model 6 (L-H) | Model 7 (L-H) | Model 8 (L-H) |
|---|---|---|---|---|---|---|---|
| Weak Rebels | 0.492*** | 0.774*** | | | 0.533*** | 0.593*** | 0.597*** |
| | (0.127) | (0.161) | | | (0.105) | (0.117) | (0.173) |
| RPR | | | 2.894*** | 2.044** | 2.708*** | 2.97*** | 2.82** |
| | | | (0.975) | (0.824) | (0.787) | (0.796) | (1.097) |
| Shared Ethnic | | | | | | -0.184 | -0.06 |
| | | | | | | (0.533) | (0.539) |
| Criminal | | | | | | 1.22* | 1.357* |
| | | | | | | (0.63) | (0.736) |
| Peasant | | | | | | 1.968*** | 2.019*** |
| | | | | | | (0.356) | (0.395) |
| Semiofficial | | | | | | -1.227*** | -1.001** |
| | | | | | | (0.391) | (0.443) |
| Joint Membership | | | | | | -1.202* | -0.562 |
| | | | | | | (0.641) | (0.716) |
| Contiguous War | | | | | | | -1.556*** |
| | | | | | | | (0.464) |
| GDP/Capita | | | | | | | -0.607** |
| | | | | | | | (0.244) |
| Separatists | | | | | | | -0.027 |
| | | | | | | | (0.433) |
| Polity | | | | | | | 0.073** |
| | | | | | | | (0.35) |
| Number of Militias | | | | | | | 0.002 |
| | | | | | | | (0.034) |
| Constant | -2.021*** | -4.977*** | -3.217*** | -3.704*** | | | |
| | (0.491) | (0.896) | (0.933) | (0.824) | | | |
| Observations | 232 | 232 | 216 | 216 | 212 | 194 | 194 |
| Pseudo-$R^2$ | 0.159 | 0.286 | 0.103 | 0.047 | 0.204 | 0.286 | 0.339 |
| Log-likelihood | -131.694*** | -71.451*** | -132.171*** | -94.317** | -163.905*** | -132.94*** | -123.133*** |

**Notes:** *p<0.1; **p<0.05; ***p<0.01; Cluster-adjusted robust standard errors reported in parentheses.

an alternative econometric option is to use a multinomial logistic regression. In Table 6 I replicate my main analysis with multinomial logistic regressions with moderate containment as the baseline category. In the first two specifications, *Weak Rebels* is still statistically significant at the 99% level: relative to moderate levels of containment, as the strength of the rebel threat increases, the probability of no militia containment increases, and the probability of high containment decreases. Consistent with many of the previous analyses, *RPR* is statistically significant and in the predicted direction when comparing the probability of no containment to at least some level of containment, but is not a significant predictor of the change from moderate to high containment. In the full, possibly overparameterized model estimating the probability of low containment relative to moderate containment (Model 17a), the coefficient on *Weak Rebels* is in the predicted direction but loses statistical significance. Though the results from the multinomial logits are slightly less supportive of my hypotheses on the whole, it is important to note that using a multinomial logit here is not necessarily the most appropriate methodological solution to problems with ordered logits. Although these models do not assume parallel regressions, they do assume that the dependent variable is a set of independent, nominal categories that are not close substitutes (Long and Freese 2014). This

Table 5: Ordered Binary Logits- Additional Controls

| Dependent Variable: | Model 9 (L-M/H) | Model 10 (L-M/H) | Model 11 (L-M/H) | Model 12 (L/M-H) | Model 13 (L-M/H) | Model 14 (L/M-H) |
|---|---|---|---|---|---|---|
| Weak Rebels | 0.544*** | 0.503*** | 0.546*** | 0.791*** | 0.391* | 0.959*** |
| | (0.18) | (0.195) | (0.169) | (0.183) | (0.214) | (0.357) |
| RPR | 3.189*** | 3.264** | 2.438** | 1.101 | 2.878* | 1.234 |
| | (1.088) | (1.343) | (1.17) | (1.494) | (1.485) | (2.209) |
| Shared Ethnic | 0.391 | 0.645 | -0.373 | -0.429 | -0.178 | -0.606 |
| | (0.576) | (0.553) | (0.678) | (0.866) | (0.642) | (0.855) |
| Criminal | 0.902* | 0.988* | 1.064** | 1.759** | 0.959 | 1.926* |
| | (0.535) | (0.577) | (0.463) | (0.886) | (0.605) | (1.146) |
| Peasant | 1.840*** | 2.081*** | 1.761*** | 2.409*** | 2.201*** | 2.260*** |
| | (0.48) | (0.577) | (0.463) | (0.852) | (0.562) | (0.823) |
| Semiofficial | -0.945* | -0.658 | -0.907 | -1.371*** | -0.748 | -1.498** |
| | (0.512) | (0.619) | (0.553) | (0.436) | (0.828) | (0.671) |
| Joint Membership | -1.666*** | -1.286* | -2.117*** | 0.197 | -1.430*** | 0.754 |
| | (0.544) | (0.686) | (0.546) | (0.666) | (0.525) | (0.89) |
| Contiguous War | | -1.532*** | | | -1.731*** | -0.920 |
| | | (0.582) | | | (0.559) | (0.949) |
| GDP/Capita | | -0.391* | | | -0.294 | -0.742 |
| | | (0.215) | | | (0.295) | (0.549) |
| Separatists | | -0.375 | | | 0.363 | -0.588 |
| | | (0.489) | | | (0.544) | (0.966) |
| Polity | | 0.054 | | | 0.069** | 0.071 |
| | | (0.036) | | | (0.035) | (0.045) |
| Number of Militias | | 0.061 | | | 0.063 | -0.029 |
| | | (0.058) | | | (0.064) | (0.09) |
| Foreign Support | -0.428 | 0.261 | | | | |
| | (0.908) | (0.953) | | | | |
| Deaths (logged) | | | -0.053 | -0.104 | -0.137 | -0.021 |
| | | | (0.202) | (0.238) | (0.198) | (0.452) |
| Duration | | | 0.023 | 0.011 | 0.017 | -0.002 |
| | | | (0.024) | (0.02) | (0.018) | (0.03) |
| Guerrilla | | | -0.016 | 0.127 | -0.234 | 0.455 |
| | | | (0.753) | (0.901) | (0.556) | (0.951) |
| Observations | 174 | 174 | 172 | 172 | 172 | 172 |
| Pseudo-$R^2$ | 0.351 | 0.41 | 0.368 | 0.418 | 0.446 | 0.439 |
| Log-likelihood | -74.919*** | -68.147*** | -74.482*** | -50.548*** | -65.253*** | -48.769*** |

**Notes:** *p<0.1; **p<0.05; ***p<0.01; Cluster-adjusted robust standard errors reported in parentheses. Constant omitted for aesthetic reasons.

might not be an appropriate assumption given that moderate and high levels of containment may be substitutes after a government decides to contain the militia to some degree. The binary ordered logit approach I use in the main analysis, however, allows for this possibility. For this reason, the method used in the main analysis is the most appropriate.

Table 6: Multinomial Logistic Regressions (Baseline: Containment= 2)

| Dependent Variable: | Model 15a Low | Model 15b High | Model 16a Low | Model 16b High | Model 17a Low | Model 17b High |
|---|---|---|---|---|---|---|
| Weak Rebels | -0.304*** | 0.545*** | -0.368** | 0.593*** | -0.239 | 0.836** |
| | (0.112) | (0.151) | (0.146) | (0.185) | (0.167) | (0.368) |
| RPR | -2.676*** | 0.311 | -3.181*** | -0.183 | -3.796*** | -1.116 |
| | (0.826) | (0.897) | (0.967) | (1.342) | (1.437) | (2.208) |
| Shared Ethnic | | | -0.168 | -0.662 | -0.493 | -1.108 |
| | | | (0.637) | (0.912) | (0.666) | (0.946) |
| Criminal | | | 0.325 | 2.236 | 0.193 | 2.36 |
| | | | (1.081) | (1.453) | (1.144) | (1.561) |
| Peasant | | | -1.135** | 1.907*** | -1.429** | 1.764*** |
| | | | (0.478) | (0.676) | (0.598) | (0.63) |
| Semiofficial | | | 0.736 | -1.201* | 0.587 | -1.298 |
| | | | (0.616) | (0.642) | (0.843) | (0.888) |
| Joint Membership | | | 15.342*** | 15.02*** | 15.69** | 15.876*** |
| | | | (0.56) | (0.817) | (0.791) | (0.946) |
| Contiguous War | | | | | 1.921*** | 0.253 |
| | | | | | (0.455) | (0.794) |
| GDP/Capita | | | | | 0.306 | -0.455 |
| | | | | | (0.277) | (0.331) |
| Separatists | | | | | 0.054 | -0.632 |
| | | | | | (0.409) | (0.951) |
| Polity | | | | | -0.073** | 0.003 |
| | | | | | (0.036) | (0.054) |
| Number of Militias | | | | | -0.059 | -0.031 |
| | | | | | (0.065) | (0.056) |
| Constant | 4.418*** | -3.333** | 5.251*** | -3.543 | 2.518 | 0.401 |
| | (0.988) | (1.447) | (1.245) | (2.339) | (2.401) | (3.852) |
| Observations | 212 | 212 | 194 | 194 | 194 | 194 |
| Pseudo-$R^2$ | 0.215 | 0.215 | 0.329 | 0.329 | 0.403 | 0.403 |
| Log-pseudolikelihood | -161.737*** | -161.737*** | -124.95*** | -124.95*** | -111.225*** | -111.225*** |

**Notes:** *p<0.1; **p<0.05; ***p<0.01; Cluster-adjusted robust standard errors reported in parentheses.

# Endogeneity Probe and Militias Formed During War

Though the results reported above are generally robust to different specifications, there remains a concern that state containment of militias is endogenous to the rebel threat or political reach. Rebels may increase their troop strength as a response to more powerful, autonomous militia combatants. It is also possible that autonomous militias contribute to weaker political authority. There are a few reasons to doubt that the observed relationships are endogenous. Beginning with the rebel threat variable, rebel organizations must constantly recruit soldiers and grow their movement regardless of whether other militant groups involved in the war are heavily armed. In other words, even in the absence of a particularly dangerous militia combatant, rebels still have incentives to recruit large numbers of troops. Even if highly capable militias did increase rebel recruitment, it would probably occur because the PGM is committing mass killings that increased sympathy for the rebel cause. However, a simple bivariate logistic regression (Model 18 in Table 7) with Stanton's (2015) binary indicator for civilian targeting by militias as the dependent variable and containment as the independent variable reveals no

Table 7: Endogeneity Probe- Civilian Targeting and Alternative *RPR*

| Dependent Variable: | Model 18 Civ. Targeting | Model 19 (L/M-H) | Model 20 (L-M/H) | Model 21 (L/M-H) | Model 22 (L-M/H) |
|---|---|---|---|---|---|
| Containment | 0.071 | | | | |
| | (0.259) | | | | |
| Weak Rebels | | 0.544*** | 0.795*** | 0.48** | 0.927*** |
| | | (0.161) | (0.199) | (0.188) | (0.35) |
| RPR (Alternative) | | 2.852*** | 0.992 | 2.67*** | 0.537 |
| | | (0.87) | (0.996) | (1.183) | (1.393) |
| Shared Ethnic | | -0.166 | -0.591 | 0.094 | -0.755 |
| | | (0.59) | (0.868) | (0.562) | (0.862) |
| Criminal | | 0.737 | 1.86** | 0.927* | 1.937** |
| | | (0.521) | (0.783) | (0.542) | (0.882) |
| Peasant | | 1.858*** | 2.382*** | 2.112*** | 2.26*** |
| | | (0.453) | (0.637) | (0.543) | (0.591) |
| Semiofficial | | -1.305*** | -1.349*** | -1.082 | -1.156** |
| | | (0.492) | (0.463) | (0.686) | (0.586) |
| Joint Membership | | -1.578*** | 0.281 | -1.053* | 0.68 |
| | | (0.494) | (0.662) | (0.574) | (0.707) |
| Contiguous War | | | | -1.707*** | -0.997 |
| | | | | (0.484) | (0.769) |
| GDP/Capita | | | | -0.641*** | -0.843*** |
| | | | | (0.245) | (0.323) |
| Separatists | | | | 0.062 | -0.354 |
| | | | | (0.424) | (0.868) |
| Polity | | | | 0.076** | 0.048 |
| | | | | (0.035) | (0.047) |
| Number of Militias | | | | 0.059 | -0.016 |
| | | | | (0.058) | (0.057) |
| Constant | -0.423 | -5.242*** | -6.613*** | 0.395 | 0.29 |
| | (0.494) | (1.239) | (1.946) | (2.333) | (3.19) |
| Observations | 94 | 191 | 191 | 191 | 191 |
| Pseudo-$R^2$ | 0.001 | 0.314 | 0.387 | 0.409 | 0.422 |
| Log-likelihood | -64.071 | -88.553*** | -55.737*** | -76.396*** | -52.574*** |

**Notes:** *p<0.1; **p<0.05; ***p<0.01; Cluster-adjusted robust standard errors reported in parentheses.

statistically significant relationship between civilian targeting and my containment measure ($p = 0.783$).[1] None of this rules out the possibility of endogeneity between rebel strength and PGM containment, but the logic of reverse causation in this case seems flawed.

The possibility of endogeneity between internal political authority and PGM containment seems more plausible on theoretical grounds. However, for militia containment to cause changes

[1]Stanton's (2015) civilian killings variable is a 1 if the militia engaged in: "massacres; scorched earth campaigns; cleansing of a particular ethnic or religious group from a territory; or deliberate bombing and shelling of civilian targets" (908). Unfortunately, her data are only available for 94 of the militias in my dataset.

Table 8: Ordered Binary Logits- Militias Formed During War

| Dependent Variable: | Model 23 (L-M/H) | Model 24 (L/M-H) | Model 25 (L-M/H) | Model 26 (L/M-H) | Model 27 (L-M/H) | Model 28 (L/M-H) | Model 29 (L-M/H) | Model 30 (L/M-H) |
|---|---|---|---|---|---|---|---|---|
| Weak Rebels | 0.543*** | 0.788*** | 0.469*** | 1.013*** | 0.519*** | 0.645*** | 0.386* | 0.704* |
| | (0.147) | (0.194) | (0.179) | (0.366) | (0.177) | (0.182) | (0.234) | (0.385) |
| RPR | 2.935*** | 1.501 | 3.14** | 0.935 | 2.282** | 1.776 | 2.632 | 2.19 |
| | (0.914) | (1.254) | (1.308) | (1.783) | (1.058) | (1.712) | (1.75) | (2.431) |
| Shared Ethnic | -0.287 | -0.598 | -0.016 | -0.921 | -0.581 | -0.537 | -0.292 | -0.664 |
| | (0.604) | (0.893) | (0.623) | (0.95) | (0.637) | (0.968) | (0.593) | (0.954) |
| Criminal | 0.695 | 1.967** | 0.864* | 2.139** | 0.787 | 1.989 | 1.059* | 1.926 |
| | (0.538) | (0.914) | (0.52) | (1.09) | (0.738) | (1.223) | (0.602) | (1.279) |
| Peasant | 1.637*** | 2.533*** | 1.907*** | 2.314*** | 2.032*** | 2.242*** | 2.224*** | 2.196*** |
| | (0.425) | (0.729) | (0.524) | (0.684) | (0.518) | (0.719) | (0.6) | (0.834) |
| Semiofficial | -1.098** | -1.249** | -0.972 | -1.155** | -1.073* | -1.555** | -0.83 | -1.464** |
| | (0.523) | (0.49) | (0.678) | (0.568) | (0.567) | (0.622) | (0.726) | (0.707) |
| Joint Membership | -1.786*** | 0.354 | -1.226** | 0.723 | -1.323** | 1.009 | -0.846 | 1.353 |
| | (0.481) | (0.642) | (0.544) | (0.679) | (0.512) | (0.843) | (0.528) | (0.915) |
| Contiguous War | | | -1.842*** | -0.831 | | | -2.035*** | -1.52 |
| | | | (0.463) | (0.783) | | | (0.6) | (0.924) |
| GDP/Capita | | | -0.455** | -0.809** | | | -0.484 | -0.149 |
| | | | (0.221) | (0.342) | | | (0.343) | (0.463) |
| Separatists | | | -0.058 | -0.541 | | | -0.105 | -1.096 |
| | | | (0.418) | (0.872) | | | (0.587) | (0.972) |
| Polity | | | 0.078** | 0.063 | | | 0.031 | -0.043 |
| | | | (0.032) | (0.047) | | | (0.045) | (0.055) |
| Number of Militias | | | 0.041 | -0.034 | | | 0.037 | -0.046 |
| | | | (0.058) | (0.061) | | | (0.064) | (0.061) |
| Formed During War | 0.489 | 0.638 | 0.344 | 0.845 | | | | |
| | (0.426) | (0.624) | (0.458) | (0.743) | | | | |
| Constant | -5.581*** | -7.731*** | -1.314 | -1.225 | -4.467*** | -6.565** | 0.053 | -4.501 |
| | (1.196) | (2.246) | (2.411) | (3.671) | (1.439) | (2.864) | (3.65) | (5.628) |
| Observations | 194 | 194 | 194 | 194 | 132 | 132 | 132 | 132 |
| Pseudo-$R^2$ | 0.334 | 0.409 | 0.421 | 0.439 | 0.338 | 0.381 | 0.418 | 0.408 |
| Log-likelihood | -87.594*** | -54.109*** | -76.098*** | -51.348*** | -60.232*** | -41.427*** | -52.921*** | -39.617*** |

**Notes:** *p<0.1; **p<0.05; ***p<0.01; Cluster-adjusted robust standard errors reported in parentheses.

in political reach, containment must precede the observed value of *RPR*. In Models 19-22 of Table 7, I replicate the main results using the *RPR* value in the year prior to each PGM's formation, according to the PGMD. The coefficient remains statistically significant in Models 19 and 21, which estimate the probability of any containment (moderate or high), but, consistent with the weaker results for *RPR* in the second-stage, high containment models, the coefficient loses statistical significance. The results confirm that the internal political authority of a state has a much stronger effect on the probability of any containment than high levels of containment, but there is little empirical reason to suspect that my main results are driven by endogeneity.

Since many militias are formed prior to the onset of a conflict and may contribute to the state's political reach, I explore whether my results are robust when I focus only on militias formed during a war. First, I coded whether each militia was formed during the war and added it as a control variable for each of my main specifications. I report the specifications with other controls (omitting my independent variable-only models due to space constraints) in Models 23-26 in Table 8. The results are largely consistent with my main analyses: *Weak Rebels* is always positive and statistically significant for each level of containment, and *RPR* is positive and highly significant in the low-to-moderate/high containment models but insignificant in the low/moderate-to-high containment models. Though not reported here, both *Weak Rebels* and

*RPR* are statistically significant and positive predictors of each ordinal level of containment when only controlling for the other independent variable and whether the militia was formed during the war. This latter variable is never statistically significant on its own in any of these specifications. As a second approach, I re-ran my main models only on the subset of militias that were formed during the war, though I lost just under half of my observations. The results are reported in Models 27-30 in Table 8. I again omitted the independent variable-only models for space, but in these specifications for each level of containment, each independent variable remained positive and statistically significant (*Weak Rebels* was significant at the 99% confidence level for each ordinal category, and *RPR* was significant at the 95% level when any containment was the dependent variable and the 90% level when high containment was the dependent variable). In Models 27-28, *Weak Rebels* remains positive and highly significant, though *RPR* is again only significant in Model 27 where the dependent variable is any containment (moderate or high). When controlling for 10 other variables in Models 29-30, both independent variables are in the predicted direction, but *RPR* loses significance in Model 29 and *Weak Rebels* is only significant at the 90% confidence interval. Though my main results appear to weaken in this last specification, taken together with the results from the other endogeneity checks, I am still confident that the relationship between political reach and militia containment is meaningful and that this result was likely due to overparameterization and a reduced sample size.

# Evaluating the Non-Strategic Alternative Theory: Post-war Militia Survival

An alternative, simpler argument rooted in traditional assumptions about state motivations may produce similar explanations: namely that states are motivated to endlessly pursue a monopoly on the use of force and will therefore contain or eliminate militias whenever they are able. Indeed, according to this story, we would also expect that stronger states (those with higher RPR scores) will contain militias to a greater degree during a civil war. For this reason, the quantitative evidence I present may not fully separate my theory of strategic bargaining from this non-strategic theory. To derive competing hypotheses between these two arguments, however, we can turn to the question of why some counterinsurgent militias survive longer than others even after a rebel threat has subsided and a civil war had ended. According to the non-strategic story, stronger states should quickly eliminate these militias after a civil war has ended because they are motivated by monopolizing the use of force and have the internal reach to do so. In fact, particularly when a militia is highly contained and therefore cannot put up much of a fight against a strong state, the effect of a state's political reach on the probability of militia termination should be amplified. Thus, if the non-strategic story were true, we should observe the following:

1. After a civil war has ended, increasing *RPR* increases the hazard of PGM termination.
2. After a civil war has ended, the positive effect of increasing *RPR* on the hazard of PGM termination is amplified when PGMs are more highly contained.

According to my strategic bargaining story, on the other hand, states with greater political reach cannot commit to not eliminating a militia, but *this does not mean they always will.*

Rather, the state only needs to terminate the militia if the militia presents a threat to it or its long-term political objectives. Militias that were contained during a war, however, can more credibly promise that they will not betray the state because doing so would lead to swift suppression by the government (especially when the government does not have to simultaneously fight an insurgency). Given these expectations about the behavior of the other, strong states may actually be more likely to continue utilizing contained militias for post-war internal security and local policing without fear of egregious shirking or betrayal because it is strategically optimal for weak militias in strong states to remain loyal. The (perhaps counterintuitive) implication of the strategic bargaining story, then, is that more confidently strong states should actually increase the post-war survival of contained militias:

3. After a civil war has ended, increasing *RPR* should decrease the hazard of PGM termination when the PGM is more highly contained.

Expectations 2 and 3 are clearly contradictory: the non-strategic story implies that strong states will eliminate their contained militias quickly after a war has ended because they can. In other words, if a state is motivated purely by pursuing a monopoly on the use of force, then strong states should tend to eliminate militias as quickly as possible, especially if the militias are already weakened by the state's containment measures. Alternatively, the strategic story implies that strong states actually allow non-threatening militias to survive longer (the militia just cannot meaningfully demand more capabilities than they have). Failing to comply with the demands of the state could lead to a contained militia's demise, and therefore the rational militia will remain compliant and the rational strong state will be less likely to feel threatened enough by the militia to pursue a suppression strategy. More generally, because these hypotheses are inconsistent with each other, support for one is evidence against the alternative theory.

To test whether one explanation has more support than the other, I took all militias in my dataset and identified their start and dissolution dates according to the PGMD. I filled in missing termination dates on my own where possible.[2] I then created a panel dataset of militia-years and coded a dummy variable for each year in which civil war was occurring according to my main dataset. Recall that my main analysis includes all large-scale civil wars that began or ended after 1989 until the year 2010. Since I want to focus on the incentives of states and militias once a rebel threat has subsided, I then subset the data to only include post-war militia-years, but code the survival time of each included militia from its origin date. My final sample included 199 militia-year observations, 43 different militias, and 28 instances of militia termination. Using my ordinal measure for *Containment* and time-varying data on *RPR* (Kugler and Tammen 2012), I could then estimate the independent and interactive effects of these variables on the hazard of militia termination. Because I do not wish to impose an inappropriate baseline hazard form on the data, I employ a Cox proportional hazards model on the survival time of each militia during post-war periods with robust standard errors clustered on the country. I report the coefficient estimates in Table 9 and interactive effects in Figure 1.

Turning first to Model 31, neither *RPR* nor *Containment* appear to have any discernible effect on the hazard of militia termination. I therefore cannot reject the null hypothesis associated with Expectation 1, meaning that these first two implications derived from the non-strategic story are not systematically borne out by the observable evidence. The results in Model 32,

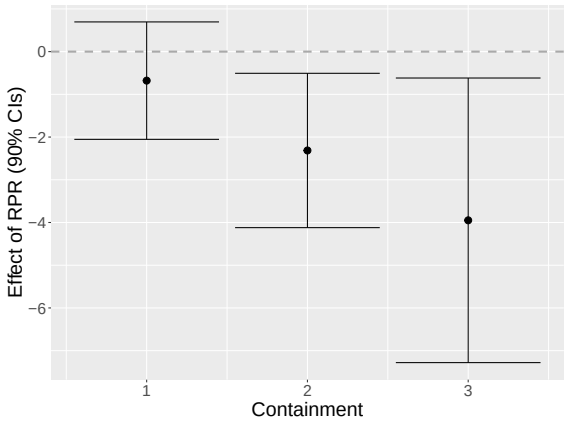
[2]I was unable to determine clear termination dates for 4 militias in the dataset, two of which were coded as highly contained and two of which were coded as uncontained.

Table 9: Cox Model: Post-war Militia Survival

| | Model 31 | Model 32 |
|---|---|---|
| RPR | -0.938 | 0.956 |
| | (0.811) | (1.6) |
| Containment | 0.402 | 2.183** |
| | (0.322) | (1.104) |
| RPR*Containment | | -1.635 |
| | | (1.089) |
| Observations | 199 | 199 |
| Log-pseudolikelihood | -51.482 | -51.029* |

**Notes:** *p<0.1; **p<0.05; ***p<0.01; Cluster-robust standard errors reported in parentheses. No variables violate the PH assumption.

Figure 1: Interaction Effects




however, are even more important. At first glance, the coefficient for *Containment* is the only parameter statistically different from zero at a reasonable level of confidence, but the constitutive terms are not substantively meaningful in this specification because 0 is not a true value for either independent variable. Similarly, although the coefficient on the interaction term is statistically insignificant, it is essential to plot the interactive effects against the values of the other variable to make meaningful inferences about them. Figure 1 shows the effect of increasing *RPR* at each level of *Containment*. Clearly, *RPR* has no statistical effect on the hazard of militia termination when the militia is uncontained, but at each ordinal level of *Containment* (e.g. moderate and high), the effect of increasing state reach reduces the hazard of militia termination. In other words, when militias are moderately or highly contained, expanding a state's reach is actually associated with longer post-war militia survival. This evidence directly contradicts the expectation derived from the non-strategic monopoly on force story and is consistent with the expectation derived from my strategic bargaining theory: after a civil war has ended, strong states appear to allow contained militias to endure longer rather than quickly eliminating them, even though stronger states are more capable of doing so.[3] This suggests that the relationships between militias and states are characterized by mutual expectations of the actions of the other rather than solely being dominated by the desire of states to have a monopoly on the use of force.

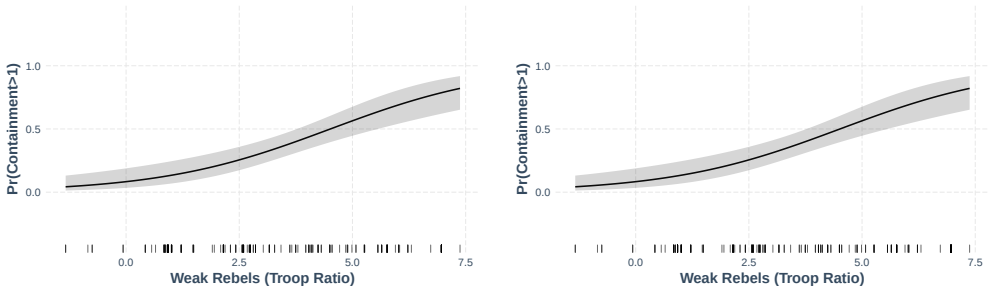
[3]Because this is a supplemental analysis meant to probe an additional testable implication, and because the sample size is much smaller, I did not want to overburden the analysis with copious controls. Though not shown here, I also tried controlling for semiofficial status, whether the country was a democracy (Polity > 5, and the number of militias in that country-year. The results were always in the same direction, but occasionally lost significance depending on the combination of controls included. This may be due to the relatively small sample size, but at the very least I found no evidence consistent with the non-strategic story. I also tried re-running the analysis on all non-war years after 1989 (i.e. including militia-years prior to wars as well as after them). In this case, *RPR* consistently reduced the hazard of militia termination (even independently), and the negative interaction effect of *RPR* across levels of containment was also consistently negative and significant, similar to the results reported here. These results were also robust to the inclusion of the aforementioned controls. Thus, across multiple specifications and sample frames, I found little to no evidence supporting the non-strategic story, and often found additional evidence supporting the strategic bargaining theory.

# Supplemental Predicted Probability Plots

As a supplement to the predicted probability plots reported in the main text, I report simulated predicted probability plots for each of my independent variables of interest based on Models 3-6 from the main analysis here. Figures A.1 and A.3 provides the simulated predictions for *Weak Rebels* based on Models 3-6, and Figures A.2 and A.4 provide the predictions for *RPR* based on the same models. Although the effects of my variables of interest do seem to weaken slightly when incorporating the effects of various controls, the results are largely consistent with the probabilities depicted in Figures 1-2 in the main text.

Figure 2: Predicted Probability of Containment by Rebel Threat

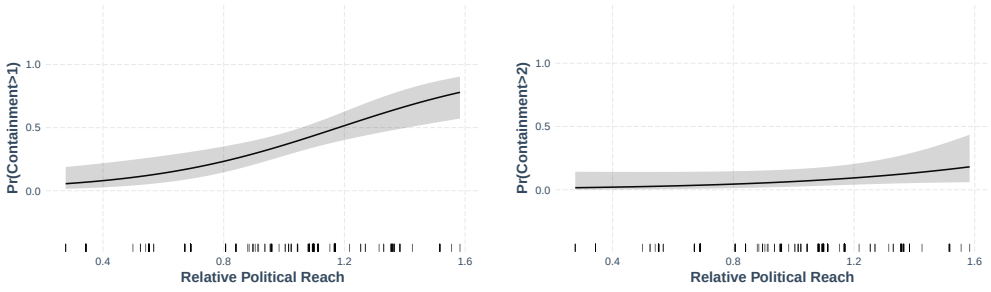
(a) Low-Moderate/High (b) Low/Moderate-High




Note: Simulated probabilities of moderate/high or high containment at all levels of *Weak Rebels* with 95% confidence intervals based on Models 3 (a) and 4 (b). Other variables held at their means.

Figure 3: Predicted Probability of Containment by Relative Political Reach

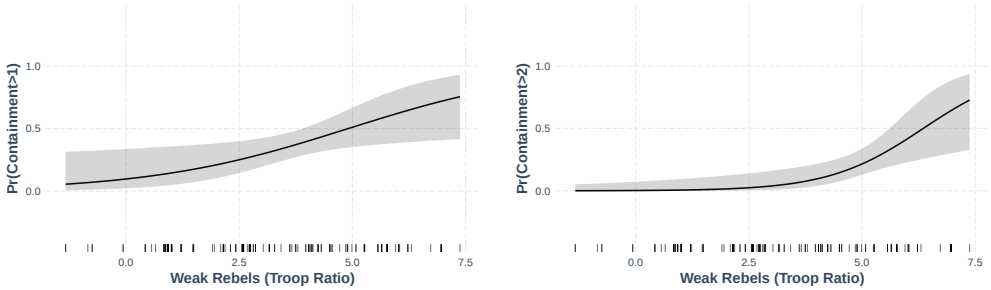
(a) Low-Moderate/High (b) Low/Moderate-High




Note: Simulated probabilities of moderate/high or high containment at all levels of *RPR* with 95% confidence intervals based on Models 3 (a) and 4 (b). Other variables held at their means.

Figure 4: Predicted Probability of Containment by Rebel Threat

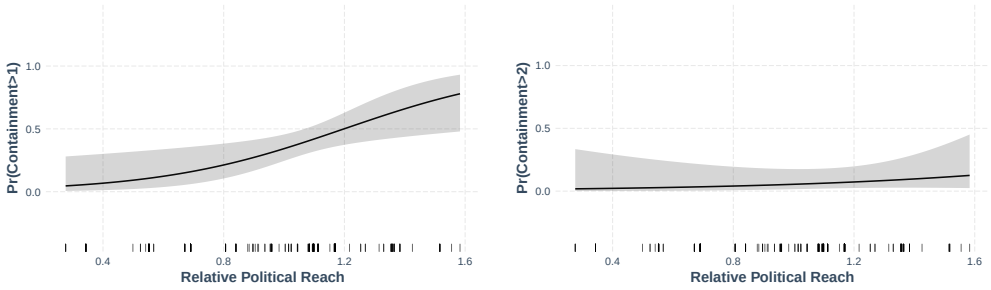
(a) Low-Moderate/High (b) Low/Moderate-High




Note: Simulated probabilities of moderate/high or high containment at all levels of *Weak Rebels* with 95% confidence intervals based on Models 5 (a) and 6 (b). Other variables held at their means.

Figure 5: Predicted Probability of Containment by Relative Political Reach

(a) Low-Moderate/High (b) Low/Moderate-High




Note: Simulated probabilities of moderate/high or high containment at all levels of *RPR* with 95% confidence intervals based on Models 5 (a) and 6 (b). Other variables held at their means.

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