Online Supplementary Materials for "Led Astray: Leaders and the Duration of Civil War"

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I. Alternative High Risk Leader Specifications

High Risk Rebel Leaders

This section tests the possibility that rebel leader responsibility is conditional on the leader's risk level. To test this, I create a measure of rebel leaders' risk of internal and opponent-based punishment. First, the rebel organization's level of centralized command and control is used to measure the risk of internal punishment. A rebel leader is at low risk of internal punishment if he exerts so much control over his subordinates that they, like elites in personalist regimes, cannot decouple their fates from his and coordinate to punish him. At the other extreme, the most decentralized and loosely organized rebel groups may also lack the ability to punish their leaders. These groups, characterized by a loose, cell-based structure, likely have few institutionalized mechanisms for leader punishment and little direct contact between leader and subordinates, making it difficult for group members to physically punish the leader (Heger, Jung, and Wong 2012; Cunningham, Gleditsch, and Salehyan 2009). Therefore, rebel leaders who exert mid-level control over their organization may be at greatest risk of internal punishment. I use data on level of centralized control from the NSA dataset to create this variable (Cunningham, Gleditsch, and Salehyan 2013). Leaders are considered at high internal risk if their group is coded as having low or moderate centralized control. Leaders of groups with no or high centralized control are considered at low internal risk.

Second, while relative strength was used to assess state leaders' risk of opponent-based punishment, it is not as clearly related to the risk of punishment for rebels. This is because weaker rebels, despite their strength disadvantage, may be able to evade detection and the reach of the state, depending upon other factors unrelated to the group's fighting capacity. Therefore, a clearer determinant of the rebel leader's risk of punishment by the state is whether he/she is based or has access to territory outside of the state's sovereign control. Leaders whose groups have extensive bases outside of the country where they are fighting, and for whom there is clear evidence that they are actually based abroad, are likely to be more secure against punishment by the state because it is more difficult and costly for the state's police or security forces to apprehend or otherwise target the rebel leader without violating another state's sovereignty (and paying costs for doing so) or having to coordinate with another country in order to gain access to the rebel leader. Data on groups' access to bases abroad comes from the NSA dataset, while information on the leader's location is based upon original research for this project.

Based upon these conditions for high internal and opponent-based risk, high-risk rebels are those whose internal group structure allows for subordinates to hold the leader accountable (medium levels of centralized control) and who are more reachable by the state because they lack external bases or are based domestically. All other rebel leaders are considered low-risk. Based on these distinctions, I created two dummy variables: *High Risk Responsible Rebel Leader* is coded 1 if the rebel leader is responsible and 'high risk', while *Low Risk Responsible Rebel Leader* is coded 1 if he is responsible and 'low risk', with all non-responsible rebel leaders constituting the comparison category.

As the results in Column 1 of Table S1 indicate, high-risk responsible rebels significantly increase conflict duration, relative to non-responsible rebels. While the result for low-risk responsible rebels is somewhat weaker, they too reduce the hazard of termination (significant at the 0.1 level). A Wald test, furthermore, indicates that there is no significant difference in the impact of these two variables (chi2=0.23, p-value=0.628). Therefore, it is more appropriate to treat all rebel leaders as vulnerable to punishment, and not to condition the impact of leader responsibility on risk level for rebels. This finding is as expected for two reasons. First, the link between group structure and internal punishment is not as clear-cut for rebels as it is for the state. Rules and institutionalized mechanisms for leader removal and punishment are less-well established in rebel groups, so that even highly centralized rebel groups may be able to punish their leaders with fewer consequences than elites in personalist states. Rebel elites in highly dispersed groups, also, may be able to remove an unpopular leader. While they may not be able to physically punish him/her, they can wrest power from his control by promoting fractionalization within the group. Thus, rebel leaders may not be secure against internal punishment even when group structure is highly centralized or highly dispersed. Second, while opponent-based punishment is likely to be most costly for the state when rebel leaders can exit the country, states may still be able to target rebel leaders abroad. For instance, the Turkish government was able to apprehend PKK leader Ocalan despite the fact that he was based abroad, and the Iranian government was able to assassinate two rebel leaders of the KDPI when they were in Europe to attend negotiations with the Iranian regime. This suggests that rebel leaders still face a non-zero probability of punishment by the state when based abroad. Ultimately, this means that while high-risk rebel leaders might be slightly more vulnerable to punishment than their low-risk counterparts, their overall risk remains non-zero, and high enough that responsibility for the war still impacts their incentives to gamble for resurrection to avoid punishment.

Accounting for Source of Risk

It is also possible that the source of risk – internal or opponent-based – matters. In the main analysis, leaders are considered high risk only if they face a threat of both internal and opponent-based punishment. This is because these two threats are likely to reinforce one another, making leaders facing a dual threat particularly vulnerable and most likely to gamble for resurrection. Column 2 in Table S1 below tests the possibility that a high risk of punishment from only internal or only external sources also increases the risk of punishment for responsible leaders. Specifically, it includes the following variables for state leaders: 1) responsible state leader with high risk of punishment from *both* sources, 2) responsible state leader with high *internal* risk only, 3) responsible state leader with high *opponent-based* risk only, and 4) responsible state leader with low internal and external punishment risks. The comparison category for these four variables is the set of non-responsible state leaders. A similar set of four indicators is included for rebel leaders: 1) responsible rebel with high risk from both sources, 2) responsible rebel with a high internal risk only, 3) responsible rebel with high external risk only, and 4) responsible rebel with low internal and external risk. Again the comparison category is non-responsible rebel leaders. Including these indicators allows me to determine whether high vulnerability to just internal or just opponent punishment is sufficient to provoke gambling behavior, or whether only the highest-risk leaders facing threats from both sources are likely to extend their conflicts.

As the results in Column 2 demonstrate, a responsible state leader who faces a high risk of both internal and opponent-based punishment is significantly less likely to end his conflict than a non-responsible state leader. Responsible state leaders facing a high risk of punishment from only one source and those at low risk overall, on the other hand, are no more likely than non-responsible state leaders to extend their conflicts. This suggests that, among state leaders, punishment risk must be quite high, with multiple sources reinforcing each other, before responsible leaders engage in gambling behavior. The finding also indicates that the original 'high risk' variable, which combined internal and opponent-based risk into one indicator, accurately identifies the set of leaders who are likely to engage in gambling behavior. The results for rebel leaders show that responsibility reduces the hazard of conflict termination regardless of risk source and level.

While responsibility with high external risk is not significant, Wald tests indicate that this variable's impact is not significantly different from the other rebel responsibility variables. This finding is in line with the above discussion, and the findings in Column 1 of Table S1, that rebel responsibility's impact is not contingent upon risk level. It is important to note, however, that the current measures of risk level for both rebel and state leaders are fairly blunt. Should future data collection efforts allow for more precise measures of leaders' punishment risks, we may be better able to parse the effects of high versus low and internal versus opponent punishment on leaders' conflict behavior.

Table S1: Alternative High Risk Analyses

	High Risk Rebels	Risk Source Variables
High Risk Responsible Rebel Leader	0.631*** (0.107)	
Low Risk Responsible Rebel Leader	0.680* (0.138)	
State Leader Responsibility	1.105 (0.162)	
High Internal and External Risk Responsible State Leader		0.627** (0.118)
High Internal Risk Responsible State Leader		1.307 (0.223)
High External Risk Responsible State Leader		0.935 (0.211)
Low Internal and External Risk Responsible State Leader		1.176 (0.227)
High Internal and External Risk Responsible Rebel Leader		0.600*** (0.105)
High Internal Risk Responsible Rebel Leader		0.417*** (0.108)
High External Risk Responsible Rebel Leader		0.807 (0.181)
Low Internal and External Risk Responsible Rebel Leader		0.526** (0.132)
Rebel Leader Change (prev. 3mos)	1.639** (0.324)	1.758*** (0.353)

State Leader Change (prev. 3mos)	1.089 (0.294)	1.089 (0.307)
Rebel Support	0.477*** (0.0769)	
State Support	0.624*** (0.0779)	0.631*** (0.0812)
Rebels Much Weaker	0.712** (0.105)	
Rebels Stronger	2.460*** (0.764)	
Number of Conflict Dyads (ln)	1.168* (0.109)	1.026 (0.0937)
Effective Territorial Control	0.866 (0.144)	0.677** (0.107)
Democracy	0.896 (0.168)	
GDP per Capita (ln)	0.991 (0.0681)	0.925 (0.0590)
Population (ln)	0.820*** (0.0407)	0.783*** (0.0350)
Rebel Support X Time	1.003* (0.00146)	
Effective Territorial Control X Time	0.996** (0.00196)	
Observations	20607	20210

Hazard Ratios Reported. Standard errors clustered on dyadic episode. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

II. Alternative Coding Rules for Leader Responsibility

Results using two alternative coding rules for leader responsibility are presented in this section. The first accounts for the possibility that leaders might acquire responsibility through their actions and policies rather than solely as a result of their relationship with the first leader. Specifically, leaders may 'gain' responsibility in their constituents' eyes if they engage in significant escalatory behavior upon taking power. There are two key aspects of this process of 'becoming' responsible: first, the new leader must escalate early in his/her tenure, just after taking power. This is important because the initial few months or year of a new leader's tenure is the period during which he or she is building and solidifying his/her reputation. Escalation later during the leader's tenure, therefore, is less likely to change constituents' and opponents' opinions of the leader. In essence, the leader's reputation is more malleable at the start of his/her tenure (Dafoe, Renshon, and Huth 2014; Smith 2016; Wolford 2007). Second, it is important that the escalatory behavior be large enough that it constitutes a break with the regular fluctuations in battle intensity and frequency that are likely to occur throughout the course of conflict, and which are determined by factors, like seasonal variations in weather patterns, that are beyond the leader's control.

I use data on the intensity of conflict from the UCDP dyadic conflict dataset to code conflict escalation. UCDP codes the intensity of conflict as 1 if there are between 25 and 999 battle deaths in a year, and codes an intensity level of 2 for years in which battle deaths exceed 1000. Based on this information, escalation is coded 1 if, in the year after a leader takes power, the conflict's intensity level exceeds that from the year prior to the leader taking power. There are some important limitations associated with this measure. Specifically, it is possible that a conflict moves from a 1 to a 2 on intensity with only a small increase in the number of deaths (e.g. from 900 to 1000). While it is important to acknowledge these limitations, this variable is used because it is available for the entire time period under examination, and for all conflict dyads in the dataset. Alternative measures, for example based upon the UCDP Battle Deaths or GED datasets, allow for more precise measures of escalation, but are available for a more limited set of cases and for a limited time period, so require dropping a significant number of observations from the dataset.[1] Using this measure of escalation, two rebel leaders and 12 state leaders who were non-responsible based upon the original coding scheme are recoded as responsible based upon their escalation of the conflict upon coming to power. The results using this alternative coding scheme for leader responsibility are presented in Table S2, columns 1, 3, and 5. As the results demonstrate, the main results hold using these alternative measures of leader responsibility.

The second robustness check uses alternative coding rules for state leaders in non-democratic regimes. In the main analysis, replacement leaders who were co-party members with the first leader in non-democracies were not coded as responsible unless they were also high-ranking officials when the conflict started. This coding rule represents a departure from existing research on leader culpability, which codes all co-party members as responsible, even in non-democracies (Croco 2011). As discussed in the main text, I believe my coding rule is most appropriate. Despite this, I recoded state leader responsibility to include all co-party members and reran the main analysis to ensure the results are robust to the alternative specification. The results using the more lenient coding rule for state leader responsibility are presented in Table S2, columns 2, 4, and 6. As the results demonstrate, using the more lenient coding rule does not change the empirical results. All three models produce results consistent with the main analysis.

[1] Despite this, an analysis using the GED data produces similar results. Results available upon request.

Table S2: Cox Model Results for Alternative Leader Responsibility Codings

	Model 1 Escalation	Model 1 Lenient	Model 2 Escalation	Model 2 Lenient	Model 3 Escalation	Model 3 Lenient
Leader Responsibility	**0.591*****	**0.612****				
	(0.117)	**(0.117)**				
Rebel Leader Responsibility			**0.634*****	**0.668****	**0.599*****	**0.624*****
			(0.104)	**(0.110)**	**(0.0984)**	**(0.107)**
State Leader Responsibility			**1.085**	**1.157**		
			(0.154)	**(0.173)**		
High Risk Responsible State Leader					**0.598*****	**0.691***
					(0.112)	**(0.132)**
Low Risk Responsible State Leader					**1.233**	**1.364***
					(0.188)	**(0.218)**
Rebel Leader Change (prev. 3mos)	1.874***	1.876***	1.700***	1.724***	1.813***	1.840***
	(0.344)	(0.343)	(0.317)	(0.321)	(0.344)	(0.349)
State Leader Change (prev. 3mos)	1.035	1.036	1.069	1.082	1.142	1.165
	(0.271)	(0.271)	(0.281)	(0.284)	(0.293)	(0.299)
Rebel Support	0.438***	0.439***	0.444***	0.445***		
	(0.0673)	(0.0675)	(0.0694)	(0.0697)		
State Support	0.606***	0.600***	0.617***	0.607***	0.626***	0.620***
	(0.0699)	(0.0690)	(0.0722)	(0.0714)	(0.0725)	(0.0721)
Number of Conflict Dyads (ln)	1.141	1.138	1.132	1.124	1.007	1.007
	(0.100)	(0.0997)	(0.101)	(0.100)	(0.0871)	(0.0871)
Rebels Much Weaker	0.708**	0.714**	0.717**	0.712**		
	(0.0981)	(0.0987)	(0.0998)	(0.0992)		
Rebels Stronger	2.418***	2.442***	2.552***	2.530***		

	(0.708)	(0.716)	(0.739)	(0.729)		
Effective Territorial Control	0.849	0.856	0.840	0.842	0.864	0.878
	(0.134)	(0.135)	(0.134)	(0.135)	(0.134)	(0.137)
Democracy	0.935	0.930	0.907	0.928		
	(0.156)	(0.155)	(0.157)	(0.161)		
GDP per Capita (ln)	0.966	0.973	0.967	0.974	0.921	0.932
	(0.0626)	(0.0631)	(0.0632)	(0.0637)	(0.0533)	(0.0549)
Population (ln)	0.801***	0.802***	0.814***	0.817***	0.799***	0.802***
	(0.0376)	(0.0377)	(0.0392)	(0.0394)	(0.0349)	(0.0355)
Rebel Support X Time	1.004**	1.004**	1.003**	1.003**		
	(0.00146)	(0.00148)	(0.00145)	(0.00146)		
Effective Territorial Control X Time	0.996**	0.996**	0.996**	0.996**	0.995**	0.995**
	(0.00199)	(0.00197)	(0.00197)	(0.00196)	(0.00202)	(0.00200)
Observations	21200	21334	21200	21200	21163	21117

Hazard Ratios Reported. Standard errors in parentheses, clustered on dyadic conflict episode. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

III. Incorporating War Performance

This section presents analyses accounting for leaders' performance in the war. As discussed in the main text, responsible leaders may only have incentives to gamble for resurrection when they fail to perform favorably in war, as war performance is a key metric by which audiences judge the leader's competence and whether he deserves punishment. I therefore test the expectation that conflict is less likely to end when responsible leaders *whose war performance is not favorable* hold power. I use original data collected on each leader's war performance to measure group performance over time. For each leader in the dataset, performance is coded as poor/status quo (0), or favorable (1). Poor/status quo performance is assigned to leaders who suffered setbacks on the battlefield or made concessions, or who failed to gain but also avoided military and political setbacks during their tenures. Favorable performance is assigned to leaders who achieved battlefield success and/or concessions during their tenures. A second version of this variable codes performance based upon battlefield performance alone, excluding political concessions (columns 2 and 4 in Table S3 below).

Because performance is measured at the leader-level, it captures variation over time (from one leader to the next) in group performance. However, there remains potentially important temporal variation that is not captured with this measure, particularly for groups whose leaders hold power for long periods of time, because the measure does not vary over a given leader's tenure. Instead, it focuses on the leader's performance in the last 1-2 years of his/her tenure (or from start to end of tenure for leader in power less than 2 years). Thus, the results below should be interpreted as suggestive rather than conclusive. Caveats notwithstanding, this analysis allows me to account for the impact of leader responsibility conditional on war performance. The following variables are used in the analysis for Model 2 (columns 1 and 2 in Table S3): (1) *Responsible Rebel Leader w/ Poor/SQ Performance*, (2) *Responsible Rebel Leader w/ Favorable Performance,* (3) *Responsible State Leader w/ Poor/SQ Performance,* and (4) *Responsible State Leader w/ Favorable Performance.* In the Model 3 analysis (columns 3 and 4 in Table S3), the state leader with poor/sq performance variable is replaced with two variables that also account for the state leader's risk level: (1) *High Risk Responsible State Leader w/ SQ/Poor Performance*, and (2) *Low Risk Responsible State Leader with SQ/Poor Performance.* The excluded comparison categories, therefore, are non-responsible rebel leaders and non-responsible state leaders. If responsibility's impact is dependent upon war performance, I would expect only *rebel responsible with SQ/poor performance* to significantly decrease the hazard of termination among the rebel responsibility variables, and only *high risk state leader responsible with SQ/poor performance* to significantly decrease the hazard of termination among state leaders.

The results presented in Table S3 below provide initial support for the argument that leader responsibility's impact is conditional on war performance. Responsible rebel leaders with status quo/poor performance significantly reduce the hazard of conflict termination relative to non-responsible rebels, while responsible rebel leaders who have performed favorably have no significant effect relative to non-responsible rebels. This result holds whether or not political concessions are included in the measure of war performance. Similarly, high-risk responsible state leaders whose performance was not favorable significantly decrease the probability of termination relative to non-responsible state leaders, while responsible state leaders who performed favorably in the war actually increase the hazard of termination relative to the baseline category. Again this effect holds whether concessions are included or excluded from the measure of war performance. While these results should be taken as suggestive rather than conclusive given the data limitations discussed above, they do indicate that by grouping responsible leaders who perform favorably with all other responsible leaders, the main results, if anything, are biased *against* a significant finding. Thus, the main analysis can be treated as a hard test for leader responsibility: the results are consistent or even stronger when the conditionality is taken into account.

Table S3: Cox Model Accounting for Leader War Performance

	Model 2	Model 2 Excluding Concessions	Model 3	Model 3 Excluding Concessions
Rebel Leader Responsible w/ SQ/Poor Performance	**0.720***	**0.687****	**0.702***	**0.640****
	(0.134)	**(0.131)**	**(0.137)**	**(0.125)**
Rebel Leader Responsible w/ Favorable Performance	**0.763**	**0.640**	**0.775**	**0.636**
	(0.200)	**(0.179)**	**(0.203)**	**(0.179)**
State Leader Responsible w/ SQ/Poor Performance	**1.050**	**1.066**		
	(0.167)	**(0.186)**		
State Leader Responsible w/ Favorable Performance	**1.510****	**1.537****	**1.494****	**1.505****
	(0.272)	**(0.289)**	**(0.295)**	**(0.308)**
High Risk Responsible State Leader w/ SQ/Poor Performance			**0.630****	**0.606****
			(0.142)	**(0.151)**
Low Risk Responsible State Leader w/ SQ/Poor Performance			**1.120**	**1.144**
			(0.196)	**(0.218)**
Rebel Leader Change (prev. 3mos)	1.883***	1.879***	2.129***	2.100***
	(0.363)	(0.388)	(0.408)	(0.434)
State Leader Change (prev. 3mos)	1.011	0.938	1.010	0.935
	(0.279)	(0.285)	(0.275)	(0.274)
Rebel Support	0.495***	0.457***		
	(0.0656)	(0.0661)		
State Support	0.589***	0.565***	0.583***	0.589***
	(0.0733)	(0.0745)	(0.0703)	(0.0759)
Number of Conflict Dyads (ln)	1.098	1.141	0.993	0.995
	(0.103)	(0.119)	(0.0911)	(0.100)

Rebels Much Weaker	0.752*	0.717**		
	(0.117)	(0.117)		
Rebels Stronger	3.117***	3.297***		
	(1.013)	(1.114)		
Effective Territorial Control	0.920	0.892	0.852	0.631***
	(0.154)	(0.161)	(0.141)	(0.0995)
Democracy	0.977	1.028		
	(0.187)	(0.197)		
GDP per Capita (ln)	0.960	0.948	0.896*	0.907
	(0.0706)	(0.0703)	(0.0594)	(0.0602)
Population (ln)	0.818***	0.830***	0.813***	0.837***
	(0.0430)	(0.0447)	(0.0393)	(0.0406)
Responsible State Leader w/ Favorable Performance X Time			0.998	0.998
			(0.00237)	(0.00260)
Effective Territorial Control X Time	0.994***	0.994***	0.995**	
	(0.00189)	(0.00207)	(0.00199)	
Observations	17873	16463	17874	16455

Hazard Ratios Reported. Standard errors in parentheses, clustered on dyadic conflict episode. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

IV. Testing the Punishment Mechanism

As discussed in the main text, the plausibility of the theoretical argument rests upon whether or not responsible leaders actually are more likely to be punished than non-responsible leaders. I test this underlying causal mechanism in this section, using original data on leaders' fates. Specifically, for each leader, I code a punishment variable that is coded 1 if the leader suffers loss of power, exile, imprisonment, death, or major fractionalization of the group (rebels only) as a result of the civil war. Leaders who are not punished, and those who are punished but whose punishment is not clearly linked to the civil war are coded 0. More detailed coding rules on leader fates are provided in section X below.

Table S4 tests the impact of responsibility on punishment for state leaders, while Table S5 tests the same for rebel leaders. Model 1 in Tables S4 and S5 tests the expectation that responsible leaders are more likely to face punishment than non-responsible leaders, overall. Model 2 in each table accounts for responsible leaders' risk level. For state leaders, I expect high-risk, responsible leaders to be more likely to face punishment than low-risk responsible leaders or non-responsible leaders. For rebel leaders, I expect both high and low-risk responsible leaders to have a significantly higher probability of punishment than non-responsible leaders. This is in line with the findings above (Table S1) that for rebel leaders, responsibility's impact is not conditional on risk level. If all responsible rebel leaders are more likely to be punished than non-responsible rebels, this will corroborate the finding above that rebel responsibility is not conditional on risk level. Finally, Model 3 in each table incorporates war performance as well. The expectation is that for state leaders, high risk responsible leaders with SQ/poor performance will face the highest risk of punishment. For rebel leaders, responsible leaders with SQ/poor performance are expected to face a higher risk than non-responsible leaders or responsible leaders with favorable performance.

The results provide strong support for the punishment mechanism. First, Model 1 in Tables S4 and S5 demonstrates that leaders who bear responsibility for the war (both state and rebel) are significantly more likely to be punished than non-responsible leaders. This result is somewhat surprising for state leaders, given that responsible leaders do not significantly increase conflict duration. However, the results in Model 2 explain this anomalous finding. Specifically, Model 2 in Table S4 shows that the result is driven by high-risk responsible state leaders. Low-risk responsible state leaders are no more likely than non-responsible leaders to be punished. Furthermore, a Wald test for the equivalence of coefficients indicates that the effects for high and low-risk responsible state leaders are significantly different from one another (chi2=6.44, p-value=0.011). For rebel leaders, Model 2 shows that both high and low-risk responsibility increases the likelihood of punishment relative to non-responsible leaders, as expected. A Wald test, furthermore, indicates that there is no significant difference in effects between high and low-risk leaders (chi2=2.59 , p-value=0.11). This confirms the result from above that rebel leader responsibility's impact is not conditional on risk level.

Finally, the results in Model 3 indicate that the impact of responsibility on the likelihood of punishment is particularly strong for leaders who have performed unfavorably in the war. State leaders with favorable performance are no more likely to be punished than non-responsible leaders, regardless of their risk level. State leaders with SQ/poor performance, on the other hand, are significantly more likely to be punished than non-responsible leaders. Among these leaders, furthermore, those who are high-risk are significantly more likely to be punished than those who are low-risk (chi2=3.01 , p-value=0.08). This result supports the logic underlying the main analysis that high-risk state leaders are significantly more likely to extend their wars because they are more fearful of punishment for poor performance. The results for rebel leaders are also supportive of the theoretical expectations: responsible rebels with poor/SQ performance are significantly more likely to be punished than non-responsible rebels, while responsible rebels with favorable performance have no significant effect relative to the baseline category. Overall, these tests confirm the paper's underlying mechanism and provide additional support for the main empirical findings.

Table S4: Logit Results for State Leader Punishment

	Base Model	Incorporating Risk Level	Incorporating War Performance
Responsible State Leader	**0.712****		
	(0.318)		
High Risk Responsible State Leader		**1.241*****	
		(0.384)	
Low Risk Responsible State Leader		**0.516**	
		(0.328)	
High Risk Responsible State Leader w/ SQ/Poor Performance			**1.681*****
			(0.413)
Low Risk Responsible State Leader w/ SQ/Poor Performance			**1.099*****
			(0.312)
High Risk Responsible State Leader w/ Favorable Performance			**-0.437**
			(0.951)
Low Risk Responsible State Leader w/ Favorable Performance			**-0.807**
			(0.639)
Casualties (ln)	0.358***	0.399***	0.409***
	(0.0621)	(0.0729)	(0.0842)
Leader Conflict Duration (ln)	-0.181*	-0.286***	-0.315**
	(0.0945)	(0.108)	(0.130)
Term Limits	-0.0659	-0.0420	-0.124
	(0.295)	(0.310)	(0.352)
Transitional Leader	-0.382	-0.511	-0.855
	(0.497)	(0.522)	(0.528)
Rebels Much Weaker	-0.418		
	(0.301)		
Rebels Stronger	1.399***		
	(0.514)		
Constant	-2.907***	-2.960***	-2.847***
	(0.563)	(0.634)	(0.687)
Observations	705	683	655

Standard errors in parentheses, clustered on combatant. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

Table S5: Logit Results for Rebel Leader Punishment

	Base Model	Incorporating Risk Level	Incorporating War Performance
Responsible Rebel Leader	**1.272*** (0.298)**		
High Risk Responsible Rebel Leader		**1.066*** (0.303)**	
Low Risk Responsible Rebel Leader		**0.651** (0.330)**	
Responsible Rebel Leader w/ SQ/Poor Performance			**1.667*** (0.319)**
Responsible Rebel Leader w/ Favorable Performance			**0.155 (0.401)**
Casualties (ln)	0.0371 (0.0612)	0.0481 (0.0653)	0.0636 (0.0665)
Leader Conflict Duration (ln)	-0.164* (0.0892)	-0.182** (0.0898)	-0.186* (0.0966)
Rebel Leader Location	-0.247 (0.215)		-0.520** (0.244)
Rebels Much Weaker	0.394* (0.227)	0.363 (0.244)	0.434* (0.249)
Rebels Stronger	-1.031* (0.543)	-0.949 (0.595)	-0.241 (0.567)
Constant	-0.872** (0.407)	-0.684* (0.414)	-0.904** (0.424)
Observations	462	423	432

Standard errors in parentheses, clustered on combatant. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

V. Addressing Endogeneity

As discussed in the main text, this test uses proxies for the costs of war, measured monthly and at the combatant level, to predict leader change that brings a non-responsible leader to power. The DV, therefore, is a dummy variable coded 1 in the month in which a leader change occurs bringing a non-responsible leader to power, and zero otherwise. The UCDP Georeferenced Event Dataset (GED) (Melander and Sundberg 2013) provides appropriate information for this analysis because it identifies every battle fought between a given state and rebel group, and importantly, identifies the number of deaths suffered by each side in each battle.[2] This allows me to create two proxies for war costs. The first proxy measures whether the group suffered higher or lower than average battle fatalities in the last month, relative to the previous 12 months' average number of battle deaths. The second measure captures whether deaths *per battle* are higher or lower than average deaths per battle over the past 12 months. Both measures, therefore, judge current costs relative to recent conflict history; higher (positive) values indicate *costlier* conflict (i.e. more deaths suffered than average), while lower (negative) values indicate less costly conflict (i.e. fewer deaths suffered than average). The natural log is taken for both IVs due to their skewed distributions.

Given these measures of war costs, the following predictions are made. If leader responsibility is endogenous to the costs of war – that is, if non-responsible leaders do come to power more often when war is more likely to end because it has become too costly – then both of these key IVs should exert a positive, significant effect on the likelihood of leader change to non-responsible. On the other hand, if these two variables have no significant effect or a negative effect in the models presented below, the results will support the theoretical argument from the main text that endogeneity is not a significant concern – i.e. that leader responsibility does not appear to be endogenous to the costs of war.

Table S6 presents the results of six empirical models. The first three use the first measure of war's costliness, while the last three use the second measure of war costs that accounts for deaths per battle. Rare events logistic regression is used to estimate each of these models, as leadership change to non-responsible is a rare event in the data.[3] Models 1 and 4 present results for the full sample, while Models 2 and 5 present results for *state* combatants only and Models 3 and 6 present results for *rebel* combatants only. The results in Models 1 and 4 indicate that neither measure of the costs of war has a significant impact on the likelihood that a non-responsible leader comes to power. These results hold, furthermore, for both state and rebel combatants; war cost remains insignificant across all models except Model 3, where it is marginally significant but the coefficient has a negative sign, opposite what one would expect if high costs caused non-responsible leaders to come to power. These results, therefore, support the assertion made in the main text that leader responsibility does not appear to be endogenous. High costs of war, measured as higher deaths and higher deaths per battle than recent conflict history, does not significantly increase the likelihood that a new non-responsible leader comes to power. These results also hold when limiting the sample to first leaders only, so that only the first leadership change is observed.[4]

[2] The sample used in this test includes 80 combatants from 59 different conflict dyads in Africa between 1989 and 2010. The conflicts included in this sample display similar distributions across the independent variables as the full sample from the main analysis, providing support for the representativeness of this sample.
[3] The dependent variable is coded 1 in only 25 cases, or just over 0.4 percent of observations.
[4] Results available upon request.

Table S6: Rare Events Logit Results for Leader Change to Non-Responsible

	Full Sample	State Leaders	Rebel Leaders	Full Sample	State Leaders	Rebel Leaders
Last Month Deaths Relative to Last Year Average	-0.00994	0.0273	-0.0803*			
	(0.0144)	(0.0228)	(0.0484)			
Last Month Deaths Per Battle Relative to Last Year Average				-0.00353	0.0331	-0.0659
				(0.0149)	(0.0238)	(0.0414)
Time	0.0210	0.0622**	-0.00168	0.0182	0.0571**	-0.000880
	(0.0180)	(0.0243)	(0.0245)	(0.0196)	(0.0274)	(0.0247)
Time Squared	-0.000163	-0.000558***	-0.0000267	-0.000146	-0.000528**	-0.0000312
	(0.000143)	(0.000206)	(0.000164)	(0.000153)	(0.000228)	(0.000166)
Time Cubed	0.000000325	0.00000140***	0.000000148	0.000000297	0.00000136***	0.000000153
	(0.000000272)	(0.000000428)	(0.000000287)	(0.000000290)	(0.000000475)	(0.000000290)
Constant	-6.042***	-6.564***	-6.390***	-5.840***	-6.279***	-6.163***
	(0.516)	(0.772)	(1.027)	(0.540)	(0.806)	(0.974)
Observations	6040	3042	2998	5605	2820	2785

Estimates based on Rare Events Logit. Robust standard errors in parentheses, clustered on conflict dyad. *p<0.10, **p<0.05, ***p<0.01.

VI. Additional Robustness Checks

Alternative Specifications of the Dependent Variable (Competing Risks Analysis)

Table S7 presents a competing risks model that separates victories from other types of outcomes. While responsibility for the war generates incentives to avoid most types of termination, military victory may be more likely than other outcomes when responsible leaders hold power because the process of gambling for resurrection makes military victory the only outcome responsible leaders will be willing to settle for (Prorok 2016). Including victories in the main dependent variable, therefore, likely biases against a significant finding in the main results. The results in Table S7 below demonstrate, as expected, that the leader responsibility variables have no significant effect on the likelihood of victory relative to conflict continuation, but that their effects on settlement/low activity are consistent with the main analysis.

Alternative Leadership Change Measures

Table S8 presents robustness checks using alternative specifications of rebel and state leadership change. Specifically, these models rerun Model 3 after recoding the rebel and state leadership change variables to equal 1 for varying lengths of time after the change took place. In the main analysis, change was coded 1 for 3 months after the leader transition occurred in order to account for potential lingering effects of the transition. In Table S8, leadership change is coded 1 in several different ways: (1) only in the month the change occurred, (2) for 6 months after the change occurred, (3) for 9 months post-change, (4) for 12 months post-change, (5) for 18 months post-change, and (6) for a full 24 months after the transition. I include these robustness checks for two reasons. First, while it is likely that the effects of a leadership transition linger beyond the actual month the transition occurred, I do not have a strong theoretical expectation as to how long those effects will last. Thus, including these alternative codings ensures the results are not sensitive to the 3 month coding rule used in the main text. Second, while the correlation matrices presented in Tables S11-S13 below indicate that leadership change and leadership responsibility are not highly correlated, these variables are related theoretically, in that changes in responsibility cannot occur without leadership change also occurring (though importantly, new leaders can, and often do, take power without responsibility also changing). Given this theoretical link, it is important to ensure that the key results for leader responsibility are not dependent upon the coding rules chosen for leadership change.

As Table S8 demonstrates, the results for rebel and state leadership change are largely consistent, regardless of the coding structure. Rebel leadership change significantly increases the hazard of termination across all models, while state leadership change has no significant effect in any of the models (consistent with the main results). Importantly, in all models, the main variables of interest have the same effect as in the main analysis: when high-risk responsible state or responsible rebel leaders are in power, conflict is significantly less likely to terminate. Overall, these results indicate that the impact of leadership change is largely consistent regardless of how long the lingering impact is accounted for, and that the effects for leadership responsibility are not dependent upon the coding rules used to code leadership change.

Third Party Support

Table S9 presents results using alternative measures for external support. Recent research suggests that different types of third party support may have unique impacts upon the likelihood of termination (Sawyer, Cunningham, and Reed 2015). Table S9 accounts for these possibly varying effects by rerunning models 1 and 2 from the main text with separate indicators for weapons support to rebels/state, funding support to rebels/state, and troop support to rebels/state. I also include analyses where the indicators for funding and weapons support are extended for 3 months after the termination of such support, in order to account for the fact that these types of external support are likely to have lingering effects.[5] The results in Table S9 show that weapons support to rebels significantly lengthens conflict, while weapons support to the state has no significantly effect. External funding to rebels has no significant effect, while funding support to the state significantly reduces the hazard of termination. External troop support to rebels has no significant effect, but troop support to the state significantly lengthens conflict. The results are the same when the

[5] This robustness check is carried out for Models 1 and 2 only because in Model 3, rebel support is incorporated into the measure of high-risk state leadership.

extended codings are used. Importantly, furthermore, the impact of leader responsibility remains the same when these alternative external intervention variables are included in the analysis.

Replacement Leaders

Column 1 in Table S10 reruns Model 3 from the main text on a reduced sample that includes the subset of cases in which there has been at least one leadership change. This analysis helps ensure that it is not just the difference between first leaders and replacement leaders affecting conflict duration. While this reduces the sample size considerably, the results remain largely consistent with the main results. Rebel leader responsibility significantly lengthens conflict, even when comparing non-responsible and responsible replacement leaders. High-risk state responsibility has a hazard ratio below 1, as expected, but just fails to reach statistical significance in this reduced sample.

Natural Resource Controls

Existing research shows that natural resource production in a conflict zone can lengthen conflict (Ross 2004). I cannot include controls for this impact in the main analysis because data on natural resources is available only through 2003. However, Column 2 in Table S10 reruns the main analysis (Model 3) including controls for secondary diamond production and oil production in the conflict zone. Oil production significantly decreases conflict duration, as expected, while diamond production has no significant effect. The latter variable violates the PH assumption, however, and the hazard ratio for its interaction with time is less than 1 and significant, as expected. Importantly, leadership responsibility's impact remains consistent with the main analysis, despite the addition of these controls.

Controls for Any Territorial Control and Rebel Political Wing

Column 3 in Table S10 replaces the effective territorial control variable with a measure of *any* territorial control by rebels. While I believe accounting for whether the rebel's control is effective or not is more consistent with theoretical arguments about the impact of territorial control on conflict processes, I run this robustness check in order to be consistent with existing analyses that include measures of any control, rather than effective control (Cunningham, Gleditsch, and Salehyan 2009; Tiernay 2015). This model also includes a measure of whether the rebels have a legal political wing, as this has been shown to improve prospects for termination. As expected, rebel territorial control reduces the hazard of termination, while rebel legal political wing has the opposite effect. Importantly, the responsibility variables remain consistent despite the inclusion of these additional controls.

Excluding Coups

Finally, Column 4 in Table S10 excludes coups from the analysis. The dynamics of coups may be different than those of the majority of civil wars, and the same gambling behavior may not be prevalent. It is important, therefore, to determine whether the results remain robust to the exclusion of these cases. As the results in Table S10 demonstrate, the findings are consistent with the main results when coups are excluded.

Table S7: Model 3, Competing Risks Analysis

	Settlement/Low Activity	Victory
Rebel Leader Responsibility	**0.545***** **(0.107)**	**1.687** **(0.991)**
High Risk Responsible State Leader	**0.620**** **(0.130)**	**0.754** **(0.370)**
Low Risk Responsible State Leader	**1.343*** **(0.229)**	**1.922** **(0.904)**
Rebel Leader Change (prev. 3mos)	1.278 (0.342)	3.269*** (0.927)
State Leader Change (prev. 3mos)	1.078 (0.333)	0.574 (0.336)
State Support	0.709*** (0.0947)	0.315*** (0.0914)
Number of Conflict Dyads (ln)	1.098 (0.105)	0.649 (0.181)
Effective Territorial Control	1.068 (0.190)	0.604* (0.180)
GDP per Capita (ln)	0.966 (0.0640)	1.241 (0.192)
Population (ln)	0.844*** (0.0412)	0.648*** (0.0774)
Effective Territorial Control X Time	0.992*** (0.00239)	
Low Risk Responsible State Leader X Time		0.989 (0.00928)
State Leader Change (prev. 3mos) X Time		1.015** (0.00614)
State Support X Time		1.004 (0.00394)
Number of Dyads (ln) X Time		1.001 (0.00688)
GDP Per Capita (ln) X Time (ln)		0.791*** (0.0520)
Observations	21117	21117

Hazard Ratios Reported. Standard errors in parentheses, clustered on dyadic conflict episode. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

Table S8: Cox Models, Alternative Leader Change Variables (Based on Model 3)

	Current Month	Previous 6 Months	Previous 9 Months	Previous 12 Months	Previous 18 Months	Previous 24 Months
Rebel Leader Responsibility	0.604***	0.643***	0.660**	0.649***	0.670**	0.679**
	(0.104)	(0.108)	(0.109)	(0.109)	(0.112)	(0.115)
High Risk Responsible State Leader	0.637**	0.646**	0.646**	0.652**	0.625**	0.635**
	(0.121)	(0.126)	(0.126)	(0.128)	(0.123)	(0.125)
Low Risk Responsible State Leader	1.300*	1.300*	1.300*	1.324*	1.273	1.295*
	(0.200)	(0.202)	(0.203)	(0.205)	(0.199)	(0.201)
Rebel Leader Change	**2.232*** **	**1.740*** **	**1.698*** **	**1.577*** **	**1.575*** **	**1.609*** **
	(0.554)	**(0.297)**	**(0.273)**	**(0.238)**	**(0.227)**	**(0.212)**
State Leader Change	**1.731**	**1.136**	**0.969**	**1.186**	**0.915**	**0.949**
	(0.578)	**(0.238)**	**(0.210)**	**(0.186)**	**(0.178)**	**(0.169)**
State Support	0.620***	0.621***	0.620***	0.615***	0.613***	0.606***
	(0.0718)	(0.0722)	(0.0723)	(0.0710)	(0.0711)	(0.0702)
Number of Conflict Dyads (ln)	1.014	1.010	1.008	1.008	1.017	1.011
	(0.0878)	(0.0872)	(0.0875)	(0.0876)	(0.0882)	(0.0879)
Effective Territorial Control	0.878	0.860	0.855	0.855	0.841	0.834
	(0.135)	(0.133)	(0.133)	(0.132)	(0.130)	(0.129)
GDP per Capita (ln)	0.927	0.926	0.925	0.926	0.929	0.929
	(0.0551)	(0.0543)	(0.0535)	(0.0537)	(0.0539)	(0.0538)
Population (ln)	0.796***	0.798***	0.799***	0.796***	0.796***	0.797***
	(0.0344)	(0.0351)	(0.0354)	(0.0349)	(0.0352)	(0.0352)
Effective Territorial Control X Time	0.995**	0.995**	0.996**	0.995**	0.996**	0.996**
	(0.00199)	(0.00200)	(0.00197)	(0.00200)	(0.00197)	(0.00197)
State Leader Change X Time			**1.003**		**1.002**	**1.003**
			(0.00192)		**(0.00163)**	**(0.00169)**
Observations	21117	21117	21117	21117	21117	21117

Hazard Ratios Reported. Standard errors in parentheses, clustered on dyadic conflict episode. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

Table S9: Cox Models, Alternative Intervention Variables

	Model 1	Model 1	Model 2	Model 2
Leader Responsibility	0.629**	0.633**		
	(0.131)	(0.133)		
Rebel Leader Responsibility			0.660**	0.657**
			(0.121)	(0.120)
State Leader Responsibility			1.276*	1.276*
			(0.178)	(0.179)
Rebel Leader Change (prev. 3mos)	1.976***	1.977***	1.816***	1.812***
	(0.371)	(0.372)	(0.348)	(0.349)
State Leader Change (prev. 3mos)	1.024	1.019	1.102	1.096
	(0.272)	(0.271)	(0.296)	(0.294)
External Weapons to Rebels	**0.628*** **		**0.640*** **	
	(0.102)		**(0.104)**	
External Funding to Rebels	**0.839**		**0.808**	
	(0.151)		**(0.152)**	
External Troops to Rebels	**1.486**	**1.475**	**1.489**	**1.481**
	(0.531)	**(0.528)**	**(0.523)**	**(0.520)**
External Weapons to State	**0.992**		**1.001**	
	(0.140)		**(0.144)**	
External Funding to State	**0.572*** **		**0.570*** **	
	(0.101)		**(0.102)**	
External Troops to State	**0.613** **	**0.623** **	**0.620** **	**0.630** **
	(0.123)	**(0.126)**	**(0.125)**	**(0.128)**
External Weapons to Rebels (+3mos)		**0.624*** **		**0.633*** **

		(0.101)		**(0.103)**
External Funding to Rebels (+3mos)		**0.832**		**0.803**
		(0.152)		**(0.152)**
External Weapons to State (+3mos)		**0.972**		**0.978**
		(0.139)		**(0.142)**
External Funding to State (+3mos)		**0.556*****		**0.553*****
		(0.0985)		**(0.101)**
Number of Conflict Dyads (ln)	1.187*	1.196**	1.155	1.162
	(0.107)	(0.108)	(0.106)	(0.106)
Rebels Much Weaker	0.723**	0.714**	0.724**	0.714**
	(0.105)	(0.104)	(0.104)	(0.104)
Rebels Stronger	2.577***	2.599***	2.719***	2.734***
	(0.727)	(0.729)	(0.768)	(0.767)
Effective Territorial Control	0.902	0.906	0.904	0.908
	(0.142)	(0.143)	(0.144)	(0.145)
Democracy	1.011	1.012	1.020	1.020
	(0.201)	(0.201)	(0.212)	(0.212)
GDP per Capita (ln)	0.955	0.958	0.967	0.970
	(0.0663)	(0.0666)	(0.0676)	(0.0680)
Population (ln)	0.797***	0.794***	0.814***	0.810***
	(0.0373)	(0.0373)	(0.0385)	(0.0385)
Effective Territorial Control X Time	0.997*	0.997*	0.997*	0.996*
	(0.00188)	(0.00190)	(0.00192)	(0.00195)
Observations	18721	18721	18721	18721

Hazard Ratios Reported. Standard errors in parentheses, clustered on dyadic conflict episode. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

Table S10: Cox Model, Alternative Controls and Specifications (Based on Model 3)

	Replacement Leaders Only	Natural Resource Controls	Pol Wing and Terr Control	Excluding Coups
Rebel Leader Responsibility	0.687*	0.655*	0.629***	0.608***
	(0.141)	(0.151)	(0.104)	(0.108)
High Risk Responsible State Leader	0.801	0.460***	0.686**	0.646**
	(0.195)	(0.108)	(0.131)	(0.123)
Low Risk Responsible State Leader	1.329	1.232	1.335*	1.271
	(0.269)	(0.235)	(0.213)	(0.197)
Rebel Leader Change (prev. 3mos)	1.579	1.849***	1.904***	1.607**
	(0.439)	(0.419)	(0.356)	(0.366)
State Leader Change (prev. 3mos)	1.192	0.809	1.140	1.083
	(0.340)	(0.306)	(0.284)	(0.307)
State Support	0.673**	0.624***	0.644***	0.663***
	(0.122)	(0.0933)	(0.0746)	(0.0801)
Number of Conflict Dyads (ln)	1.040	0.901	1.014	1.035
	(0.136)	(0.118)	(0.0865)	(0.0924)
Effective Territorial Control	1.079	0.858		0.981
	(0.290)	(0.176)		(0.157)
GDP per Capita (ln)	0.840**	1.390**	0.914	0.932
	(0.0723)	(0.186)	(0.0555)	(0.0573)
Population (ln)	0.810***	0.759***	0.783***	0.824***
	(0.0514)	(0.0470)	(0.0334)	(0.0372)
Secondary Diamond Production in Conflict Zone		**1.260**		
		(0.303)		

Oil Production in Conflict Zone		**0.716***		
		(0.138)		
Rebel Territorial Control			**0.636*****	
			(0.0811)	
Legal Rebel Political Wing			**1.528****	
			(0.263)	
Effective Territorial Control X Time	0.994**	0.993**		0.995***
	(0.00238)	(0.00298)		(0.00202)
Secondary Diamond Production in Conflict Zone X Time		**0.996***		
		(0.00239)		
GDP Per Capita (ln) X Time (ln)		0.893***		
		(0.0384)		
Observations	12932	13838	21117	20990

Hazard Ratios Reported. Standard errors in parentheses, clustered on dyadic conflict episode. *p<0.10, **p<0.05, ***p<0.01. Two-tailed tests.

VII. Correlation Matrices for Main Results

Table S11: Correlation Matrix for Variables in Model 1

	Leader Responsibility	Rebel Leader Change (prev. 3mos)	State Leader Change (prev. 3mos)	Rebel Support	State Support	Number of Conflict Dyads (ln)	Rebels Much Weaker	Rebels Stronger	Effective Territorial Control	Democracy	GDP per Capita (ln)	Population (ln)	Rebel Support X Time	Effective Territorial Control X Time
Leader Responsibility	1.00													
Rebel Leader Change (prev. 3mos)	-0.04	1.00												
State Leader Change (prev. 3mos)	-0.02	0.01	1.00											
Rebel Support	0.12	-0.02	-0.02	1.00										
State Support	0.02	-0.01	0.02	0.08	1.00									
Number of Conflict Dyads (ln)	-0.01	-0.03	0.02	-0.09	-0.06	1.00								
Rebels Much Weaker	-0.11	-0.01	0.00	-0.20	-0.18	0.31	1.00							
Rebels Stronger	0.02	0.02	0.01	-0.00	0.04	-0.07	-0.07	1.00						
Effective Territorial Control	-0.03	-0.02	-0.01	0.04	0.05	0.08	-0.23	-0.00	1.00					
Democracy	-0.15	-0.02	0.07	-0.22	0.08	0.20	0.30	-0.05	-0.11	1.00				
GDP per Capita (ln)	-0.08	0.01	0.03	-0.06	0.07	-0.20	0.28	-0.02	-0.19	0.47	1.00			
Population (ln)	-0.08	-0.03	0.03	-0.30	-0.26	0.43	0.28	-0.12	-0.04	0.40	0.01	1.00		
Rebel Support X Time	-0.02	-0.04	-0.02	0.59	0.03	0.02	-0.10	-0.03	0.16	-0.09	0.01	-0.08	1.00	
Effective Territorial Control X Time	-0.14	-0.03	-0.02	0.01	0.04	0.11	-0.16	-0.03	0.64	0.05	-0.05	0.08	0.42	1.00

Table S12: Correlation Matrix for Variables in Model 2

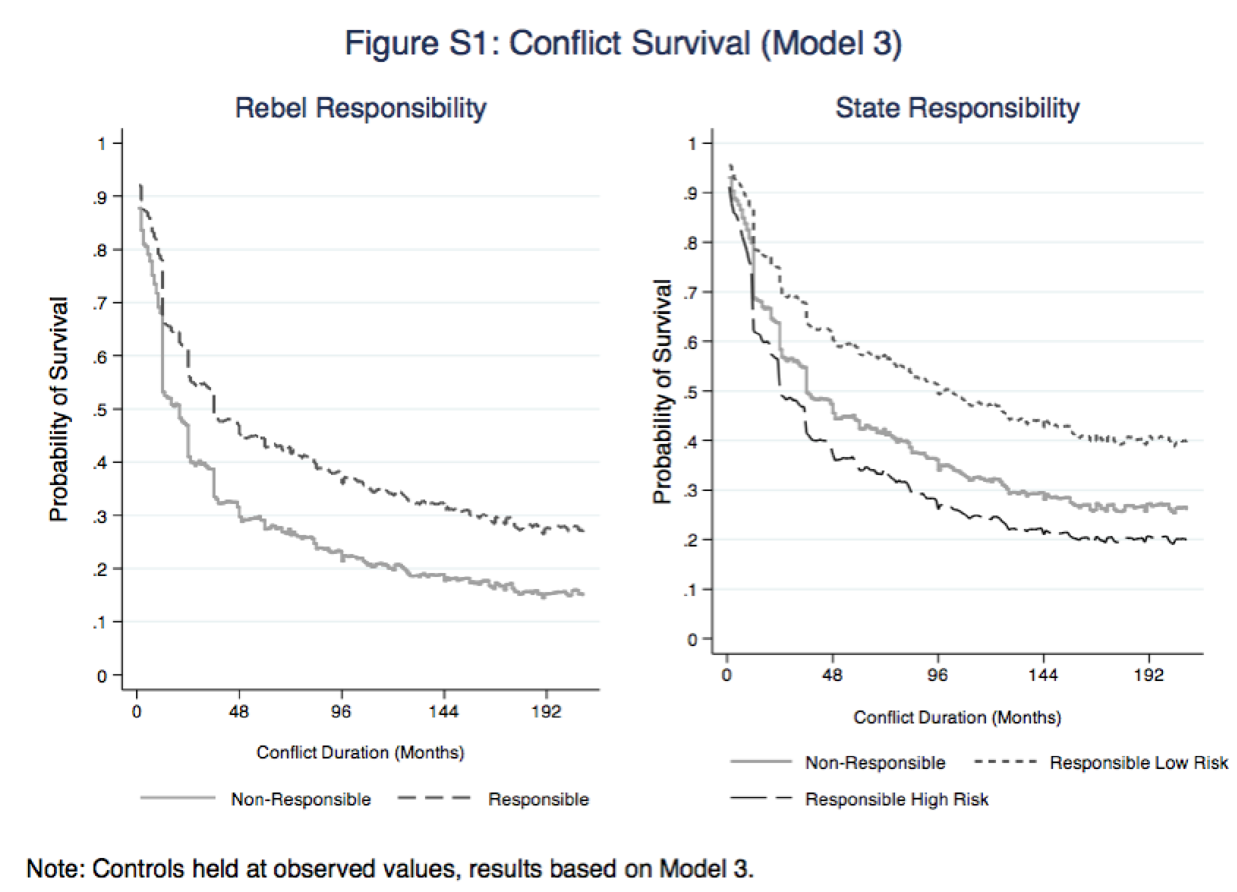
	Rebel Leader Responsibility	State Leader Responsibility	Rebel Leader Change (prev. 3mos)	State Leader Change (prev. 3mos)	Rebel Support	State Support	Number of Conflict Dyads (ln)	Rebels Much Weaker	Rebels Stronger	Effective Territorial Control	Democracy	GDP per Capita (ln)	Population (ln)	Rebel Support X Time	Effective Territorial Control X Time
Rebel Leader Responsibility	1.00														
State Leader Responsibility	0.23	1.00													
Rebel Leader Change (prev. 3mos)	-0.06	0.01	1.00												
State Leader Change (prev. 3mos)	-0.01	-0.11	0.01	1.00											
Rebel Support	0.05	0.10	-0.02	-0.02	1.00										
State Support	0.02	-0.04	-0.01	0.02	0.08	1.00									
Number of Conflict Dyads (ln)	-0.00	0.01	-0.03	0.02	-0.09	-0.06	1.00								
Rebels Much Weaker	-0.13	-0.02	-0.01	0.00	-0.20	-0.18	0.31	1.00							
Rebels Stronger	0.03	0.00	0.02	0.01	-0.00	0.04	-0.07	-0.07	1.00						
Effective Territorial Control	-0.02	0.06	-0.02	-0.01	0.04	0.05	0.08	-0.23	-0.00	1.00					
Democracy	-0.18	-0.27	-0.02	0.07	-0.22	0.08	0.20	0.30	-0.05	-0.11	1.00				
GDP per Capita (ln)	-0.12	-0.17	0.01	0.03	-0.06	0.07	-0.20	0.28	-0.02	-0.19	0.47	1.00			
Population (ln)	-0.03	-0.22	-0.03	0.03	-0.30	-0.26	0.43	0.28	-0.12	-0.04	0.40	0.01	1.00		
Rebel Support X Time	-0.12	0.03	-0.04	-0.02	0.59	0.03	0.02	-0.10	-0.03	0.16	-0.09	0.01	-0.08	1.00	
Effective Territorial Control X Time	-0.13	-0.08	-0.03	-0.02	0.01	0.04	0.11	-0.16	-0.03	0.64	0.05	-0.05	0.08	0.42	1.00

Table S13: Correlation Matrix for Variables in Model 3

	Rebel Leader Responsibility	High Risk Responsible State Leader	Low Risk Responsible State Leader	Rebel Leader Change (prev. 3mos)	State Leader Change (prev. 3mos)	State Support	Number of Conflict Dyads (ln)	Effective Territorial Control	GDP per Capita (ln)	Population (ln)	Effective Territorial Control X Time
Rebel Leader Responsibility	1.00										
High Risk Responsible State Leader	-0.02	1.00									
Low Risk Responsible State Leader	0.22	-0.46	1.00								
Rebel Leader Change (prev. 3mos)	-0.07	-0.01	0.02	1.00							
State Leader Change (prev. 3mos)	-0.01	-0.03	-0.08	0.01	1.00						
State Support	0.03	0.08	-0.09	-0.01	0.02	1.00					
Number of Conflict Dyads (ln)	-0.00	-0.21	0.16	-0.03	0.01	-0.06	1.00				
Effective Territorial Control	-0.02	-0.02	0.07	-0.02	-0.01	0.05	0.08	1.00			
GDP per Capita (ln)	-0.12	0.02	-0.17	0.01	0.03	0.07	-0.19	-0.19	1.00		
Population (ln)	-0.03	-0.20	-0.06	-0.03	0.03	-0.26	0.43	-0.04	0.00	1.00	
Effective Territorial Control X Time	-0.12	-0.00	-0.07	-0.03	-0.02	0.04	0.11	0.64	-0.05	0.08	1.00

VIII. Survival Curves at Observed Values

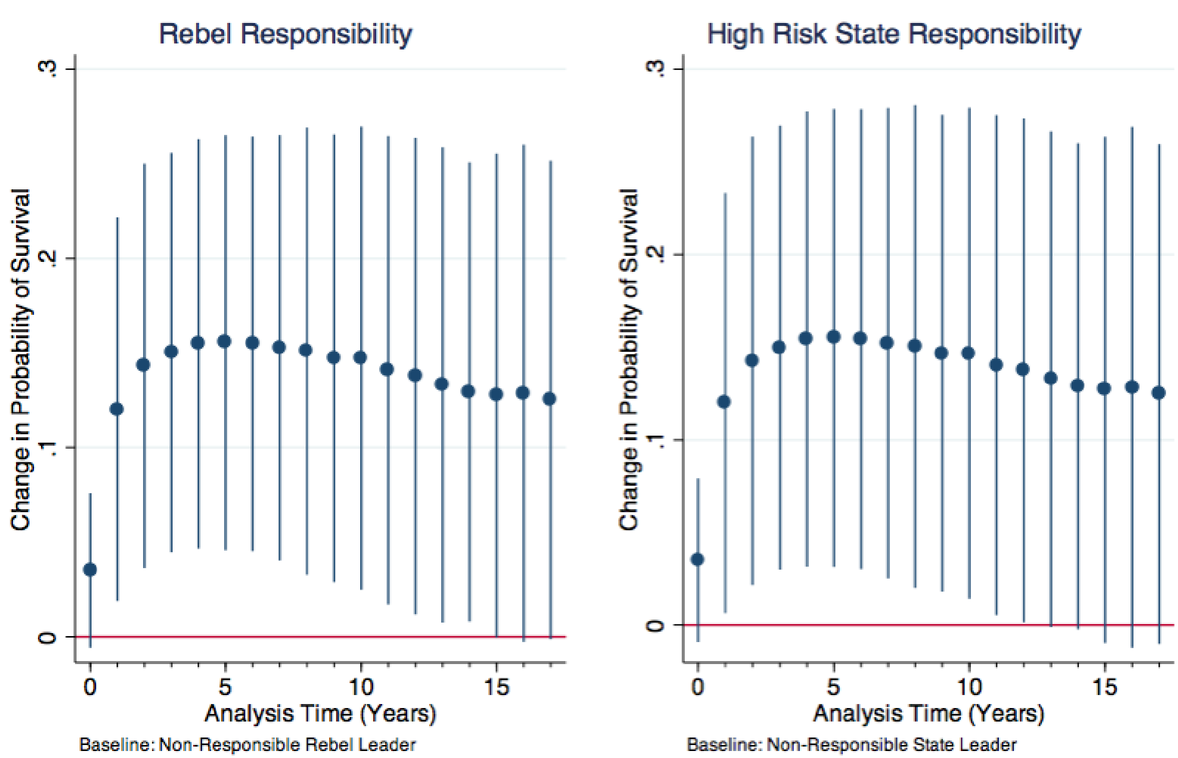
Figure S1 below presents the survivor function based upon the main results (model 3), calculated when holding all controls at their observed values rather than mean/modal values (Hanmer and Ozan Kalkan 2013).[6] The first panel graphs the survivor function for non-responsible rebel leaders versus responsible rebels, while the second panel graphs the survivor function for non-responsible state leaders versus low and high-risk responsible state leaders. As expected, the probability that a conflict continues is substantially higher when a responsible rebel leader holds power: a conflict that has lasted twelve years, for example, has a 31% chance of continuing if the rebel leader is responsible, versus just an 18% chance of continuation if a non-responsible rebel leader holds power. Similarly, a twelve-year-old conflict has a 43% probability of continuing when the state leader is high-risk and responsible, versus just a 28% probability of continuation when the state leader is non-responsible and only a 21% chance of continuation when the state leader is low-risk and responsible. These results are similar to those based upon mean/modal values presented in the main text.



[6] The survivor curves are graphed over the first 200 months of analysis time, after which the probability of conflict survival based upon observed values drops to zero.

Figure S2 graphs the change in the probability of conflict survival when leader responsibility changes and all other variables are held at observed values, based upon the survivor curves graphed in Figure S1 above. This figure is useful because it shows the period over which leader responsibility has a significant impact on the probability of survival. Specifically, the left-hand panel of Figure S2 shows that moving from a non-responsible rebel leader to a responsible rebel leader significantly increases the probability that conflict continues between years 1 and 15. The right-hand panel of Figure S2 shows that moving from a non-responsible state leader to a high-risk responsible state leader significantly increases the likelihood of conflict survival from year 1 through year 13.

Figure S2: Change in Pr(Survival)



Note: Controls held at observed values, results based on Model 3.

IX. Measurement of Control Variables

Rebel Leadership Change: This is a dummy variable coded 1 in the three months following a change in rebel leadership, including the month of the change. It is coded zero in all other months. This variable is coded based upon the original research done for this project.

State Leadership Change: This is a dummy variable coded 1 in the three months following a change in state leadership, including the month of the change. It receives a zero in all other months. This variable is coded based upon data from ARCHIGOS (Goemans, Gleditsch, and Chiozza 2009).

Rebel Military Support: This is a dummy variable coded 1 for dyad months in which the rebel group receives explicit third party military support, zero otherwise. Data come from the Non State Actor (NSA) dataset (Cunningham, Gleditsch, and Salehyan 2013). In the main analysis, this variable is interacted with analysis time because it violates the PH assumption.

State Military Support: This is a dummy variable coded 1 for dyad months in which the state receives explicit third party military support, zero otherwise. Data come from the NSA dataset.

Number of Conflict Dyads (ln): This variable is measured as the natural log of the number of active conflict dyads in the country in a given month. Data used to code this variable come from the NSA dataset.

Rebels Much Weaker: This is a dummy variable coded 1 for rebel groups that are much weaker than the state, zero otherwise. Data come from the NSA dataset's relative strength variable, which codes the strength of rebels, relative to the state, as much weaker, weaker, at parity, stronger, or much stronger.

Rebels Stronger: This is a dummy variable coded 1 for rebel groups that are stronger or much stronger than the state. Data come from the NSA dataset.

Effective Territorial Control: This is a dummy variable coded 1 if the rebel group controls territory and exercise moderate to high levels of control over that territory. Data come from the NSA dataset. In the analysis, this variable is interacted with analysis time because it violates the PH assumption.

Democracy: This is a dummy variable coded 1 for any month in which the state receives a 7 or higher on the -10 to 10 Polity2 regime type scale, and zero otherwise (Marshall and Jaggers 2010).

GDP per Capita (ln): This variable measures the country's real GDP per capita in a given year. The natural log is taken due to the skewed distribution of this variable. Data come from the Expanded Trade and GDP Data (Gleditsch 2002).

Population (ln): This variable measures the country's population in a given year. The natural logarithm is used in the analysis due to the variable's skewed distribution. Data come from Gleditsch's Expanded Trade and GDP data.

X. Rebel Leader Coding Rules

This section details the specific coding rules used to identify rebel leaders. Identifying the individual with ultimate decision-making power over major group policies (such as whether to initiate negotiations, agree to a settlement deal, launch a major military offensive, etc.) is important, as it ensures that those individuals who can decide to continue or terminate a war are identified as the leaders of their organizations. Specific coding rules for identifying rebel leaders were as follows:

An individual is coded as the group's leader if:

1. If ALL sources[7] consulted agree that this individual is the organization's leader (i.e. all sources (1) refer to him/her as the group's leader, and (2) no other individuals are referred to as leader during the same time period). To verify this coding, at least ONE of the following three conditions should hold[8]:

a. This individual holds the highest ranking position within the rebel organization and the group has only one wing, OR
b. If the organization has both political and military wings, this individual heads the dominant wing of the rebel group, OR
c. If this individual does not hold the highest-ranking position in the group or in the dominant wing (or if a dominant wing is not identifiable), sources agree that he/she is the key decision-maker in the organization. Evidence for holding the key decision-maker position can include:
    i. Statements in sources explicitly naming this individual as the key power holder in the group, OR
    ii. Evidence that group decisions were made by this individual, or that group decisions were in line with this individual's preferences as opposed to with other powerful group members' preferences.

2. If sources disagree (i.e. different sources refer to different individuals as leaders), coding the leader is based upon which individual holds key decision-making authority. The below rules were established to code leaders under these circumstances:

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[7] Over 100 books, several hundred articles, and numerous web sources were used during the coding process. Examples of sources used include the following: First, news databases such as Factiva, Lexis Nexis, and Keesings were used. Second, numerous books on specific conflicts, groups, and countries were used, and often provided detailed information on group leaders as well as conflict outcomes. Some examples include *The long war: the IRA and Sinn Féin* (O'Brien 1999), *The Algerian Civil War: 1990–1998* (Martinez 2000), *A Political History of the Civil War in Angola: 1974-1990* (James 1992), and *Afgantsy: The Russians in Afghanistan, 1979-1989* (Braithwaite 2011). Third, several encyclopedic sources on rebellion, terrorism, and similar topics provided useful overviews of each group and/or conflict, and often provided information on leaders and outcomes during these wars. These came in both print and web-based varieties; some examples include the UCDP Conflict Encyclopedia, University of Maryland's START Center Database, Stanford University's Mapping Militant Organizations project, and books such as *Civil Wars of the World* (DeRouen and Heo 2007) and *Revolutionary and Dissident Movements of the World* (Szajkowski 2004). Finally, documents and reports from international organizations such as Human Rights Watch and the United Nations, government documents, and even rebel documents/websites were used where available.

[8] In a small number of cases, it was not possible to cross-verify the leader coding with any of these additional conditions (points a through c). In these cases, it was deemed sufficient to code an individual as the group's leader if the conditions established in point 1 were met.

a. Code an individual as the group's leader if statements in sources explicitly name that person as the key power holder in the group, as opposed to other potential leaders, OR
b. Code an individual as the group's leader if there is evidence that group decisions were made by that individual rather than by another person, or that group strategic decisions were in line with this individual's preferences as opposed to another potential leader's preferences (see conditions c.i. and c.ii. above).[9]

Based upon these coding rules, 521 wartime rebel leaders from 332 conflict dyads were identified. In most cases, all sources agreed on the leader's identity, making coding the leader straightforward. Some cases were more difficult to code, however, generally for one of three main reasons: (1) the individual commonly referred to as leader did not hold the highest ranking post in the organization, (2) a leader's start or end dates in power were ambiguous, or (3) sources disagreed upon the identity of the leader. Each of these issues is discussed in turn.

Leaders who Lack Top Position in Organization

In a small number of cases, the individual coded as the group's leader is not the leader 'in name' of the organization. For example, Wirat Angkhathawon of the CPT in Thailand never actually held the title of General Secretary, officially the CPT's highest ranking position. However, multiple sources agree that Angkhathawon was the group's most influential member throughout the conflict and the locus of real power within the organization (Baker 2003; "Southeast Asia Report" 1983). He is therefore coded as the group's leader, despite never officially being named CPT General Secretary. Similarly, Yoweri Museveni is coded as the leader of the National Resistance Army (NRA) throughout its existence, despite the fact that when the group was formed through the joining of Museveni's UPM with Yusufi Lule's UFF, Lule was named Chairman of the new organization, while Museveni's title was Vice-Chairman. Museveni is coded as leader during this time period because sources agree that he wielded most power within the organization. Lule's position was largely ceremonial, as he commanded no troops of his own; his contribution to the new NRA was largely his ability to garner support from the Banyankole ethnic group (UCDP Encyclopedia).

Ambiguous Start or End Dates in Power

In most cases, identifying a leader's start and end dates in power was straightforward. For instance, a leader who was voted out of power by his group or was killed in battle lost his/her leadership position on the date of this event.[10] Thus, Jonas Savimbi was killed on February 22, 2002, and ceased to be UNITA leader on that date. Iván Marino Ospina of the M-19 in Colombia lost power on February 18, 1985 when elites within his movement removed him from power internally for calling for the murder of US diplomats.

When coding start and end date was more complicated, however, this affected the identification of leaders during these ambiguous periods. In particular, leaders who were captured and imprisoned or were forced into exile in some cases lost power while in other cases are coded as continuing to lead their organizations. The key criterion for determining whether these leaders continue to be coded as leader is based upon whether they continue to hold key decision-making authority over the group's major strategic decisions. For cases of imprisonment, a simple decision rule was employed: a rebel leader who was imprisoned by the state was coded as losing power *unless* information was found indicating that the individual in question continued to lead the group (i.e. exert authority over major strategic decisions) from prison. For example, Abdullah Öcalan, leader of the PKK in Turkey, is coded as continuing to lead the PKK into the

[9] In a small number of cases, it was not possible to identify one key decision-maker based upon these criteria (2.a and 2.b). In these cases, because sources did not agree on the leader, sufficient information was not available to make a coding decision and the leader's identity was coded as missing (see section on missing data below for more information).
[10] Start and end dates in power, where possible, were recorded to the day; where the exact date was unavailable, leadership was dated as precisely as possible (usually the month).

2000s, even after he was captured and imprisoned by the Turkish government in 1999. Öcalan is coded as leader of the PKK until late 2007 because multiple sources indicate that he continued to direct PKK strategy by passing information through his legal team to other members of the rebel outfit (Jenkins 2008). Additionally, evidence shows that the PKK heeded Öcalan's call, from prison, for attenuating the group's demands and pursuing a strategy of dialogue in the early 2000s. In fall 2007 Öcalan is coded as losing power because other top PKK leaders Karayilan, Bayik, and Huseyin shifted strategy without Ocalan's consent (*Middle East Newsline* 2008).

Foday Sankoh of the RUF provides a prime example of both retaining and losing power during imprisonment. Sankoh was arrested twice – once in 1998 and again in May 2000. During his initial detention, Sankoh remained leader in name of the RUF, and, according to sources, remained the key decision-maker for the rebel organization. This is evidenced by the fact that government negotiators continued to deal directly with Sankoh, even during his detention. I therefore code Sankoh as retaining his leadership position in the RUF during his first detention in the late 1990s. However, Sankoh is coded as losing leadership upon his second arrest in May 2000. This coding decision was made for two reasons. First, unlike during his first arrest, the RUF officially named a new leader, Issa Sesay, during Sankoh's second detention. Second and most importantly, Sankoh was no longer involved in the negotiation process during his second detention, and did not sign the peace agreement reached in November 2000 that ended the civil war. Sankoh, therefore, could no longer be coded as the final arbiter on major strategic decisions for the RUF after May 2000 (Szajkowski 2004; UCDP Encyclopedia).

Despite some exceptions like those noted above, the majority of imprisonment cases lead to loss of leadership. Thus, Rodolfo Salas of the CPP in the Philippines, Sean MacStiofain (and others) of the PIRA in Northern Ireland, and Abdelhaq Layada of the GIA in Algeria are all coded as losing power when they were captured and imprisoned, as there is no evidence to suggest that they retained any control over group policy or strategy during imprisonment.

For leaders who are exiled, a different decision rule is employed. Specifically, leaders who flee the country continue to be coded as leader *unless* information is found indicating that the individual in question was replaced as leader and no longer exerts authority over major strategic decisions. This coding decision is made because there is no reason to believe that exile, in and of itself, should prevent the leader from continuing his/her duties as head of the organization, particularly during the post 1980 period when information flows across borders are generally easy and inexpensive. Thus, leaders such as Juma Namangani of the IMU in Uzbekistan and Habier Malik of the MNLF-HM in the Philippines remain coded as leaders of their respective groups, despite the fact that both were forced to flee the states they were fighting against due to government offensives. Even after fleeing, both Namangani and Malik retained control of their respective rebel organizations. On the other hand, Jacob Prai of the OPM in Indonesia is coded as losing his leadership position upon fleeing into exile, as multiple sources indicate that control of the group passed to Martin Tabu upon Prai's flight from Indonesia (Elmslie 2002; Szajkowski 2004).

Disagreement among Sources on Leader's Identity

Finally, in a small number of cases, sources disagree on the leader's identity. This occurred, in most cases, because sources used the term 'leader' when actually referring to field commanders or mid-ranking military figures who were not top leaders, according to the definition established above. In these cases, sources material was carefully read to ensure that mid-ranked commanders and similar individuals were excluded not coded as overall leader. The remaining cases where multiple possible leaders were identified occurred either because clear information was lacking, or because leadership within the organization itself was disputed or unclear. In some cases (see section on missing data below), a coding decision could not be made due to insufficient information. However, in others, coding decisions were made based upon criteria 2.a and 2.b established above. So, for example, Enrique Bermudez is coded as leader of the FDN in Nicaragua from 1981 to 1984, after which Adolfo Calero is coded as leader until conflict termination in 1990, despite the fact that some sources continue to refer to Bermudez as the group's leader. In fact, Bermudez did remain the FDN's top military commander. By 1984, however, the group underwent a restructuring facilitated by its American backers, a process which left Calero with the top leadership position, strong US support, and thus the position of greatest authority within the group. This restructuring did not fully end conflict over leadership within the organization, however, as Bermudez challenged Calero's leadership in 1988, but Calero weathered this threat and remained in the top position (Miranda and Ratliff 1992; Canada: Immigration and Refugee Board of Canada 2000; Sklar 1988; LeMoyne 1988).

Issues with multiple possible leaders also sometimes arose because the locus of power within the organization shifted over time. For example, power in the Provisional Irish Republican Army (PIRA) shifted by the early 1980s from the Dublin-based Army Council to the Northern Ireland branch of the organization headed by Gerry Adams and affiliated closely with Sinn Fein (O'Brien 1999). Thus, by the early 1980s, leaders of the Dublin-based wing of the group were no longer coded as leaders of the organization, despite this leadership body still existing. Finally, similar issues sometimes arose when coding leadership for groups that had splintered. The OPM in Indonesia, for example, splintered in 1977 when the two top leaders of the organization, Seth Rumkorem and Jacob Prai parted ways. Because Rumkorem lacked local support in the area where OPM was primarily based, Prai's faction became dominant, despite the fact that Rumkorem continued to claim leadership and retained a small band of followers (Elmslie 2002; Osborne 1985). The coding rule established to deal with cases of this nature is straightforward: when a group splits and multiple individuals claim to lead the original organization, leadership codings follow the dominant among the post-splinter factions.[11]

A Note on Missing Leader Data

Twenty-two out of 332 rebel groups in the dataset are missing information on the leader's identity for part or all of the group's active conflict period. In the monthly dataset used in the analysis, I was unable to identify a rebel leader for 1,172 conflict months out of 22,698 (5.16%). Leader information is missing for a variety of reasons. First, several dyads have missing information because the base dataset used to identify conflict dyads did not have enough information to distinguish among a variety of rebel groups fighting the state. These conflicts include, for example, India versus Kashmir Insurgents, India versus Sikh Insurgents, and Thailand versus Patani Insurgents. Because these broad 'insurgents' groupings actually include a variety of groups fighting against the state, it was not possible to code a single leader for the rebel side. This is a limitation of the NSA data, however, and not a fundamental limitation of the data collected for this project. If data availability on these conflicts improves in the future, it may become possible to code leaders for individual groups that make up these broader insurgent groupings.

The second cause of missing data is simply a lack of information for all or part of a group's active conflict period. I was unable, for example, to find information on the leadership of the TPLF in Ethiopia during the period from 1979 to 1985, though leaders were identifiable both before and after. The MKP in Turkey, the APCO in Iran, and Bandera Roja in Venezuela also each had periods of unidentifiable leadership, all after government forces captured or killed the group's first leader, whereas the NTC in Libya had a period of unidentified leadership at the conflict's start, before the fledgling popular uprising got organized.

The final reason for unidentified leadership affects a very small number of cases, and is due to organizational structures that lack clear leadership hierarchies. Exile and Redemption in Algeria and the AMB in Israel, for example, are groups made up of largely autonomous cells that lack a central leadership body. It may be that these groups do, in fact, have some central coordinating body but that information on such structures is lacking. However, assuming that these groups are truly comprised of autonomous cells that lack central coordination, they fall outside of the purview of this project. The theory developed in the main text only applies to groups for which a central leadership exists. While this is a limitation of the theoretical argument, it clearly applies to only 5 groups out of 332 in the entire dataset (1.5%).

Finally, it is important to note that the distribution of cases with missing data does not appear to be biased in any way. First, the missing leader cases are distributed across all regions, with Africa and Asia, those

[11] This is not an issue if the successor organizations explicitly break with the original group, taking new names and establishing independent goals. In these cases, the new splinter group is treated as a separate organization, and dual claims of leadership of the original group do not exist.

regions with a higher number of conflicts, having slightly more missing data cases. Second, the rate of termination is similar within the missing leader sample (1.4%) as in the non-missing leader sample (1.5%).

Coding Leader Responsibility

As discussed in the main text, leaders are coded as responsible if they fulfill one of two conditions: if they hold power at the war's start, or if they share familial or political connections with the first leader. A replacement state leader who, at the war's start, is in the first leader's political party (democracies only), cabinet or political/military inner circle, or family, is considered responsible. For replacement rebel leaders, responsibility is coded for those who are co-founders of the organization, family members of the first leader, or, at the war's start, are high-ranking members of the organization.

Thus, coding leader responsibility requires identifying which leader was in power when a conflict began and how each subsequent leader was connected to that first leader *at the conflict's start*. This, in turn, requires precisely identifying the conflict's start date. The NSA and UCDP datasets identify a conflict's start date as the date on which the conflict passed the 25 battle deaths threshold. This date, however, could be days, months, or even years after fighting actually began, and a leader in power at this time may not have been in power when the conflict actually began. Furthermore, subsequent leaders may share political connections with the leader who was in power when the conflict crossed 25 battle deaths but not with the leader in power when the conflict first turned violent (or vice versa).

To code leader responsibility, therefore, instead of using the listed start dates from NSA, I relied upon information from UCDP's conflict encyclopedia to identify the date of the *first battle death* in each conflict dyad, using this as the start date in order to code each leader's responsibility for the war. While the first battle death date is also a relatively arbitrary threshold, as violence may begin before the first soldier or insurgent dies, choosing this cutoff provides both an identifiable start date for which data is available and more closely approximates the true start of fighting than does the 25 battle deaths date.

An example will help clarify this coding rule, and how determining start dates affects the coding of leader responsibility. In Sri Lanka's conflict with the LTTE, president Premadasa would be coded as responsible based upon the September 10, 1984 date when the conflict crossed the 25 battle death threshold. This is because he was Prime Minister of Sri Lanka under the conflict's first leader in 1984, Jayewardene. However, Premadasa is coded as non-responsible based upon the date of the conflict's first battle death, July 27, 1975. In 1975, an opposing political party was in power and Premadasa held no ministerial post or other position within the executive branch of government.

A second complication that arises when coding leader responsibility is how to assign responsibility when the same dyad fights multiple times. The first outbreak of fighting is straightforward to code, as the first leader in the first episode of a conflict is clearly responsible. Coding leaders in subsequent episodes, however, is less straightforward. If the outbreak of a new episode of fighting within the same dyad is treated as a new war initiation, first leaders in subsequent episodes should be coded as responsible. However, if a new outbreak of fighting simply constitutes a continuation of an ongoing war, then first leaders in these subsequent episodes may be considered non-responsible, depending upon their links to the first leader in the conflict overall.

To deal with this issue, the following convention was used: the dyad's original start date, rather than the start date of a subsequent episode, was used to code leaders' responsibility, *if* the previous episode ended in a low activity outcome with no clear terminating event such as the signing of a ceasefire, settlement, or military victory. If a clear terminating event occurred in the previous episode, on the other hand, the start date of the new episode was used to code leader responsibility for leaders in that episode. This coding rule was applied because it is likely that internal audiences will view a war as ongoing if no clear end to the conflict is identifiable and continued low-level fighting occurs between episodes, whereas audiences are likely to judge the first leader of a new episode as responsible if a definitive termination of conflict occurred previously and the leader has thus presided over a new outbreak of fighting. In practice, this means that in conflicts such as the KNPP vs. Myanmar, the OPM vs. Indonesia, and ETA vs. Spain, all of which experienced multiple episodes of conflict with stretches of low-level activity between and no clear terminating events, first leaders in subsequent episodes of conflict are coded as responsible only if they share political connections to the first leader in the dyad overall. For conflicts such as the KDPI vs. Iran in the mid-1960s and South Ossetia vs. Georgia in 2004, on the other hand, first leaders in these subsequent episodes are coded as responsible because they clearly presided over the outbreak of a new, distinct round of fighting. The KDPI had suffered military defeat in previous fighting in the 1940s, and South Ossetia and Georgia reached a ceasefire in 1992 that terminated the first round of conflict between them.

While these coding rules, I argue, provide the most accurate way of judging leader responsibility, the robustness check presented in Table C below uses an alternative measure of responsibility based upon the 25 battle deaths start dates and treating all leaders who preside over the start of new conflict episodes as responsible, regardless of how the previous episode ended. The correlation between the original responsibility measures and the alternative dummies ranges from 0.72 to 0.79. Table C below shows that responsibility's impact is slightly weaker using the alternative measures, but overall the results remain robust.

Coding Leader Punishment

As discussed briefly in the main text, leaders can be punished by internal audiences or wartime opponents during civil war. In addition, such punishment may take a variety of forms. The analysis of leader punishment presented below, therefore, uses of measure of punishment that incorporates both internal and opponent sources as well as both moderate and more severe forms of punishment. Specifically, to code leader punishment, I create a dummy variable that is coded 1 if a given leader experiences any of the following *as a result of the war*: 1) major fractionalization of the group, 2) loss of political power, 3) exile, 4) imprisonment, or 5) death. Major fractionalization is included as a form of punishment, as it involves the locus of power within the organization shifting towards a new leader. This leads to the marginalization of the former leader, who can no longer control policy for the full organization, and may only be left in control of a significantly weakened 'rump' group. Loss of political power is coded for leaders who lose their position as leaders of the group/state, but suffer no additional, more severe, consequences. Exile is coded for leaders who are forced to leave the country as a result of the war, whether they are force out through official channels or choose to leave 'voluntarily' under duress. Imprisonment is coded for leaders who are incarcerated as a result of the war. This can be official incarceration at the hands of the state, or more informal imprisonment by the rebel organization. Finally, death is coded for leaders who lose their lives as a result of the war.

Importantly, punishment is only coded if a majority of sources agree that the war was either an underlying cause or a precipitating cause of a given leader's punishment. If a leader loses power but no evidence links this loss to the war, the leader receives a coding of 0 for war-related punishment. This is an important departure from some existing literature (e.g. Goemans 2000), which codes punishment if a leader loses power within a year of war's end, whether or not that loss of power was actually caused by the war. Based on these coding rules, 415 leaders in the dataset (about 35%) are coded as experiencing war-related punishment.

In the punishment equation below (see Table A), several controls that are expected to influence the likelihood of leader punishment are included. First, I control for the number of casualties suffered in the war during a given leader's tenure, as more costly wars are expected to increase the likelihood of punishment. Second, I control for the leader's time in power, as longer-serving leaders are expected to be more secure and less likely to be punished. Third, I control for whether or not the leader faces terms limits, as this would provide a non-war related source of leader turnover that should reduce the likelihood of punishment. Fourth, I control for whether or not the leader is a transitional leader, which is also expected to reduce the likelihood of punishment, as such leaders take power with the expectation of voluntarily stepping down relatively quickly.

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