Does Warfare Matter? Severity, Duration, and Outcomes of Civil Wars

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Laia Balcells is Assistant Professor of Political Science, Duke University, and *Doctora Miembro* of the Juan March Institute, Madrid. Stathis Kalyvas is Arnold Wolfers Professor of Political Science, Yale University.

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Abstract

Does it matter whether a civil war is fought as a conventional, irregular, or symmetric non-conventional conflict? Put differently, do "technologies of rebellion" impact on a war's severity, duration, or outcome? We find that irregular conflicts last significantly longer than all other types of conflict, while conventional ones tend to be more severe in terms of battlefield lethality. Irregular conflicts tend to be won by incumbents, while symmetric non-conventional and conventional ones are more likely to end in draws. Substantively, these findings help us make sense of the evolution of civil wars, which are likely to become shorter, more intensely fought, and more challenging for existing governments—but also more likely to end with some kind of compromise between governments and armed opposition. Theoretically, our findings support factoring in the technology of rebellion (a variable capturing characteristics of conflicts that are visible at the micro level) when studying the severity, duration, and outcome of civil wars (macro-level patterns of conflicts); they also contribute a better understanding of the historical contribution of irregular war to both state building and social change.[*]

Keywords: civil war, asymmetric conflict, warfare, violence, technologies of rebellion.

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INTRODUCTION

Recent research has suggested that civil wars can be productively disaggregated on the basis of their "technology of rebellion," a term capturing both the relative military capacity of states and rebels, but also their interaction (Kalyvas and Balcells 2010). This classification yields three types of conflict: those fought conventionally with pitched battles and clear frontlines, when both sides can deploy heavy weaponry against each other ("conventional civil wars"); those fought irregularly, in a guerrilla fashion, when the government's conventional military faces rebels armed only with light weapons who tend to evade direct confrontation ("irregular civil wars"); and lastly, those fought by governments and rebels who are matched at a low level of military sophistication ("symmetric non-conventional" or SNC wars). To use recent examples, the civil war in Libya was fought conventionally, as external support for the rebels and the use of NATO air force allowed the opposition to match the government's initial military superiority; the ongoing war in Somalia is fought as an SNC war by rival factions armed primarily with light weapons; and the ongoing war in Afghanistan is an irregular war, with the Taliban being militarily outmatched by the Afghan government forces and the NATO-led International Security Assistance Force (ISAF).

Kalyvas and Balcells (2010) find that following the end of the Cold War, a decisive shift took place in the technologies of rebellion used in civil wars: whereas civil wars were predominantly irregular wars during the Cold War, they became primarily conventional and SNC wars after its end.[1] This change, they argued, can be linked to the transformation of the international system away from bipolarity. Understanding what causes certain technologies of rebellion to prevail in particular historical periods, however, begs a related question: what is their impact on civil wars? Is the shift away from irregular war consequential? A positive answer to this question holds both substantive and theoretical significance. On the one hand, we would like to know whether civil wars are likely to be deadlier, longer, and more biased toward one of the sides. On the other hand, tracing the impact of technologies of rebellion on their severity, duration, and outcomes contributes to a better understanding of the transformation of civil wars since it allows us to connect recent subnational research on the microdynamics of civil war, dealing with their organizational and military characteristics, with aggregate, crossnational, macro-level patterns. This also helps make sense of apparently contradictory findings that emerge from the analysis of different subnational datasets, while at the same time qualifying findings that are time and place specific, yet are sometimes assumed to be broadly representative.

In recent years, a significant body of research has emerged to explore the microdynamics of internal conflict. It has focused, among others, on themes such as recruitment into armed groups (Humphreys and Weinstein 2008, Kalyvas and Kocher 2007, Petersen 2001), violence (Balcells 2010, Lyall 2009, Kalyvas 2006), and rebel governance (Arjona 2010). This research program has developed in parallel with the study of cross-national patterns (Collier and Hoeffler 2004, Fearon and Laitin 2003), but the two research programs have rarely intercepted. A recent, very fruitful attempt to bring the two programs together (Cederman, Weidmann and Gleditsch 2011, Cederman, Wimmer and Min 2010) has focused on a single dimension of civil wars, ethnicity. Here, we attempt to connect the two research programs through the interface of technologies of rebellion.

Technologies of rebellion capture two dimensions: the relative military capacity of states and rebels and their interaction. In turn, these dimensions are related to the social profiles of armed groups involved in the conflict. It is well known, for example, that "popular support" is a key feature of guerrilla or irregular war (Kalyvas 2006); in contrast, references to the role and significance of popular support are much less common for conventional civil wars or SNC conflicts. This divergence is largely a

[1] During the Cold War, 66.34% of all major civil wars were irregular; after 1991, 47.83% of major civil wars were fought conventionally and 26.09% were SNC wars; only 26.09% were irregular wars (Kalyvas and Balcells 2010: 9).

function of the nature of the interaction between states and rebels in irregular war, i.e. whether it is symmetric or asymmetric. It is precisely the military weakness of rebels vis-à-vis the states they challenge in an irregular war, that requires them to build up civilian support. Obviously, this need shapes their practices. On the one hand, it selects among all potential rebel entrepreneurs, those who have the skills and proclivity to invest in civilian support; on the other hand, it calls for the implementation of practices that maximize this assistance and affect every aspect of the rebels' military effort: from their method of recruitment all the way to up to the institutions they set-up in the areas they control. Take recruitment, for instance. Based on the logic sketched above, we would expect rebel organizations that fight irregular wars to prioritize practices of recruitment that would not alienate the civilian population—hence, with an emphasis on voluntary joining; in contrast, rebel organizations fighting conventional wars are likely to rely on existing institutions, such as the compulsory draft, while rebel groups fighting SNC wars are likely to turn to abductions or privilege monetary incentives. Put otherwise, narrowly opportunistic motivations that have been privileged by some researchers as being essential for understanding the formation of all armed groups, may be more pertinent for a certain technology of rebellion. It is from this perspective that technologies of rebellion constitute an interface between the organizational (or micro) dimension of civil wars and their aggregate (or macro) patterns. In this paper we theoretically posit the link between technologies of rebellion and armed group practices rather than directly test it; our goal is, rather, to explore whether technologies of rebellion impact the macro-level patterns of civil war, which constitutes an indirect test of our assumptions.

To preview our analysis and summarize our results, we find that technologies of rebellion are associated with particular outcomes on all three dimensions of interest. First, irregular wars tend to last longer than the other two types; their length is associated with high levels of battlefield violence. However, when we control for conflict duration, they turn out to be less lethal compared to conventional wars. Incumbents predominantly win irregular wars, which is somewhat surprising given that this technology of rebellion is thought to be an effective "weapon of the weak." Second, conventional wars, shorter yet much more lethal than irregular ones, tend to favor incumbents, but are the technology that gives rebels their best shot at victory compared to the other two. Lastly, SNC wars are short, the least lethal on the battlefield, and the most prone to end with a compromise between the two sides. Bundling these findings together and combining them with the trend toward the decline of irregular wars, we see civil wars becoming shorter and more likely to challenge governments in place, either by handing them more outright defeats, compared to the past or forcing them to come to a negotiated agreement with rebels. Since we control for a number of other processes that are usually thought to be associated with these three dimensions, we also suggest that technologies of rebellion have an independent effect on civil war severity, duration, and outcome, in a direction that is consistent with their assumed micro-level differences.

The paper is divided into three sections. We begin by discussing our data and hypotheses, follow up with our analysis and results, and conclude with a discussion of the findings.

DATA AND HYPOTHESES

Our analysis relies on two datasets. The first one is the Technologies of Rebellion dataset in Kalyvas and Balcells (2010) (thereafter referred as TR dataset), itself based on Sambanis's 2004 data that include 147 civil wars fought between 1944 and 2004, as determined by the 1,000 deaths threshold.[2] The second one is the Armed Conflict Database of the Uppsala Conflict Data Program (UCDP) and the Peace Research Institute of Oslo (PRIO) covering 903 conflict-years that caused over 100 deaths per year, fought between 1946 and 2008 (thereafter referred as PRIO100

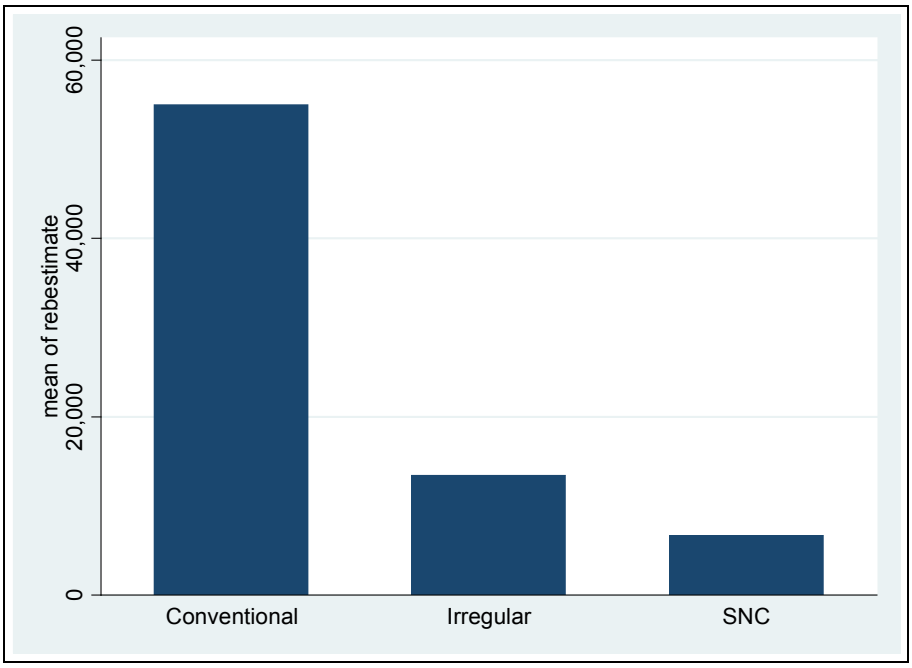
[2] See Kalyvas and Balcells (2010) for the adjustments.

dataset).[3] We have supplemented these data by coding the technology of rebellion for each conflict/year, using the coding rules of Kalyvas and Balcells (2010).[4] Using these two datasets permits a more robust set of tests than would otherwise be possible, allowing for broader coverage of conflicts and a different specification. Our three dependent variables are conflict duration, severity, and outcomes.

As explained above, our understanding of the impact of technologies of rebellion on conflict duration, severity, and outcome, draws from the micro-foundations of both the relative military capacity of the rival sides and their interaction. A conflict is conventional when it entails a symmetric interaction at a high level of military capacity, SNC when it entails a symmetric interaction at a low level of military capacity, and irregular when it entails an asymmetric interaction. Using rebel group size data from Cunningham *et al.* (2008), Figure 1 confirms the empirical basis of our intuition by showing that rebel groups fighting conventional wars tend to be much larger compared to those fighting both irregular and SNC wars.

Let's begin with the analysis of duration. So far, the duration of civil wars has been associated with a variety of factors: it has been found to be a function of the number of rebel organizations (Cunningham 2006; Akcinaroglu 2012), their longevity and strength, as well as their capacity to control territory (Cunningham *et al.* 2008), the weakness of the state (Mason and Fett 1996; Balch-Lindsay and Enterline 2000), and the conflict's origins in military coups or long-standing "Sons of the Soil" type of conflicts between natives and migrants (Fearon 2004). This is a diverse set of variables and findings. We synthesize these diverse findings by subsuming them under distinct technologies of rebellion. We hypothesize that irregular wars are longer compared to conventional and SNC wars,

FIGURE 1. Technologies of Rebellion and Rebel Group Size



[3] From the original UCDP/PRIO dataset (Gleditsch *et al.* 2002), we select only those cases with a 100 death/year threshold because it does not make sense to consider technologies of rebellion of small-scale conflicts. We use version 2009-4 of the UCDP/PRIO dataset, which includes conflicts from 1946 to 2008. We took out interstate armed conflicts; we do not exclude anti-colonial wars. These conflict-years correspond to approximately 212 conflicts.

[4] The coding rules, as well as the codebooks for the two datasets, are available on the Online Appendix.

primarily because they entail the emergence of higher quality rebels with the capacity to develop strong relations with civilian populations and build resilient institutions of governance (Arjona 2010). This is also consistent with the character of irregular wars as a technology of rebellion stressing attrition, evasion, and survival that begin in isolated and peripheral regions with difficult terrain (Fearon and Laitin 2003). All this makes these conflicts more difficult to bring to an end. Unlike irregular wars, conventional ones are based on direct clashes between rival actors, something that we argue that is likely to lead to a faster resolution. In addition, more balanced forces are more likely to lead to a "mutually hurting stalemate," thus generating incentives for a faster end to the conflict—something that is consistent with the finding about military coups being associated with shorter wars (Fearon 2004), since coups split the military and are significantly more likely to spawn conventional civil wars.[5] Lastly, SNC wars could go both ways: on the one hand, because they involve unsophisticated military technology, they are less likely than conventional wars to produce decisive clashes; also, rebels are much more prone to group fragmentation than rebels organized in conventional armies. On the other hand, the military symmetry that characterizes them could also make them shorter compared to irregular wars; also, their rebels are less likely to generate structures of governance. A way to combine these intuitions is to hypothesize that these conflicts are likely to occupy an intermediate position, be shorter than irregular wars but longer than conventional ones.

H1 Irregular conflicts are likely to last longer compared to conventional conflicts; SNC conflicts are likely to last longer than conventional conflicts but likely to be shorter than irregular ones

Turning to conflict severity or lethality, we focus on combat or battlefield deaths,[6] excluding civilian targeting.[7] The relevant literature here has largely focused on the impact of variables such as regime type (Downes 2008, Lacina 2006), polarization (Esteban, Morelli and Rohner 2012) or poverty (Lacina 2006). So far, existing work has either dismissed the effect of relative military capacity, or reports no significant effects. We posit instead a more direct link between technology of rebellion and conflict severity in the battlefield. This link is based on the effects of military symmetry and asymmetry: since they entail direct military clashes with heavy weaponry, controlling for duration, conventional civil wars should be more lethal than either irregular or SNC wars, in which the clashes are either indirect or altogether evaded (in irregular wars) or entail light weaponry (in SNC wars).[8]

H2 Conventional conflicts should be more lethal in the battlefield compared to irregular or SNC conflicts

Our last dependent variable is the outcome of civil wars. Following Lyall and Wilson (2009) we distinguish between three outcomes: incumbent win, draw, and incumbent loss. An incumbent win occurs when the rebels are militarily defeated and their organization destroyed, or the war ends without any political concessions granted to insurgent forces. A draw occurs when an incumbent is forced to concede to some rebel demands via a settlement, and neither side obtains its maximal aims. An incumbent loss occurs when the incumbent

[5] We find evidence that civil wars that start with a coup are significantly more likely to lead to conventional civil wars.

[6] Note that we are not considering combat effectiveness, which is usually measured as battle deaths over total combatants.

[7] We exclude civilian targeting because there are no fine-grained cross-national data that could be used to test the hypotheses. Despite Eck and Hultman (2007) have collected data on one-sided violence, this starts in 1989 and only partially covers the cases in our datasets. Also, violence against civilians encompasses more than one-sided violence.

[8] Given the nature of fighting, both irregular are SNC wars should generate more civilian vis-à-vis combatant deaths. While there is some evidence supporting this claim, the data is not systematic enough to be able to confirm it.

unilaterally concedes to all, or nearly all, insurgent demands. The literature here has focused primarily on the effects that a certain outcome has on other variables, such as war recurrence (Fortna 2008, Toft 2010); insofar, as the emphasis has been on the determinants of civil war outcomes, the literature has highlighted several potential factors, ranging from mechanization (Lyall and Wilson 2009), military capacity and the strategy of the rival actors (Arreguin-Toft 2005) to duration (Mason and Fett 1996, Mason, Weingarten and Fett 1999; Cunningham *et al.* 2008), regime type (Getmansky 2012), and the role of international organizations (Walter 2002). Again, we try to subsume these variables and findings into technologies of rebellion. Research on the microdynamics of civil war produces two contradictory intuitions. On the one hand, the outcome of civil wars can be thought of as being primarily a result of the respective military capacity of the rival sides. Intuitively, strong rebels fighting strong governments should have a better chance to win victories compared to weak rebels fighting strong governments; hence conventional civil wars ought to produce more victories for rebels compared to irregular wars. Based on the same logic, SNC wars ought to be more advantageous for rebels than irregular wars.

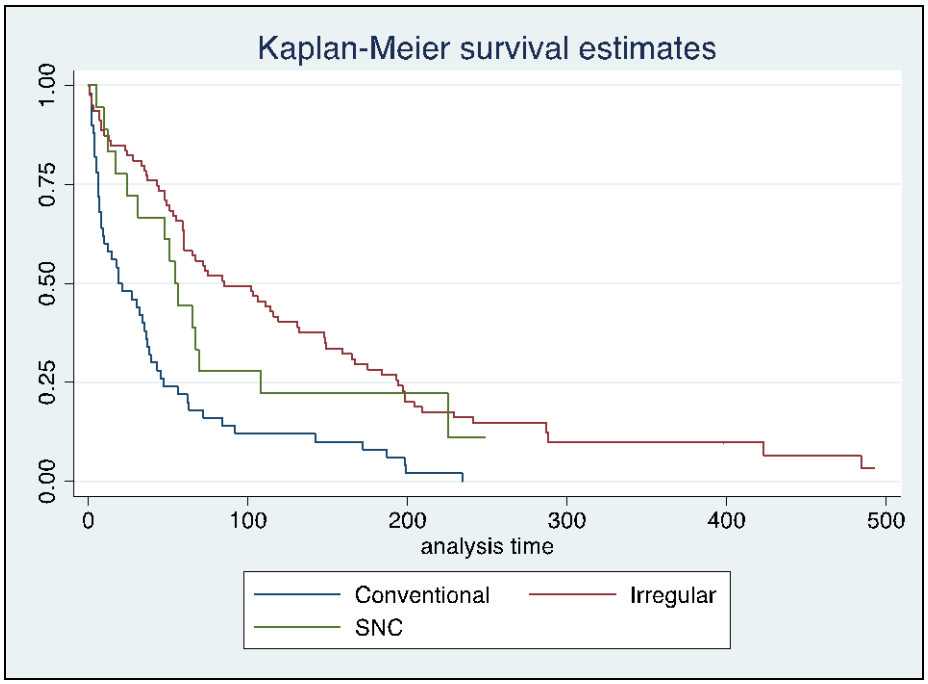
H3 Conventional and SNC conflicts are likely to produce more rebel victories compared to irregular conflicts

Although this hypothesis makes logical sense, it goes against another intuition based on a long-held view, going as far back as T.E. Lawrence, that could be termed the "Vietnam wisdom," and according to which guerrilla war is an effective weapon of the weak that can neutralize actors that are much stronger military, making counterinsurgencies a potentially losing proposition (Nagl 2002; Mack 1974).

EMPIRICAL RESULTS

We begin the empirical analysis with civil war duration. The average duration of the 142 civil wars in the TR dataset that have ended is 80.19 months; among them, conventional wars last on average 39.82 months, irregular last on average 113.32 months, and SNC last 49 months.[9] Figure 2

FIGURE 2. Duration of Civil Wars by Technology of Rebellion, in Months



[9] If we use the estimated mean approach in Stata, which provides estimates for those

shows the Kaplan-Meier survival function for the three technologies of rebellion coded in the TR dataset. The graph is also consistent with Hypothesis 1, indicating that irregular conflicts last significantly longer compared to both conventional and SNC conflicts. Also, SNC are slightly longer than conventional conflicts.

Following Fearon (2004), we run a Weibull regression, and thus we estimate the effect of technologies of rebellion on the hazard of a civil war ending. We use the accelerated failure time specification, which indicates the effect of the covariates on the log survival time. In model 1, we test for the impact of each of the technologies of rebellion on civil war duration (conventional is the base category). We then include three different sets of control variables, in different steps; in model 2, we include some of the standard controls: a Post-1990 dummy to capture the end of the Cold War,[10] Rough Terrain (measured with log of percent estimated mountainous terrain), Population (Log), Ethnic Fractionalization, Democracy (lagged one year), and GDP per capita (Fearon and Laitin 2003); in model 3, we include Military Personnel from COW (Singer et. al 1972), which is a clear measure of state and military capacity; in model 4, we also incorporate regional dummies that allow checking if there are any regional effects on civil war duration (Western Europe & Japan is the reference category).

The results, in Table 1, indicate that irregular conflicts last significantly longer than the other two, a result that is very robust to the inclusion of controls. Post-1990 also has a significant and robust effect, showing that the end of the Cold War led to shorter conflicts; this is probably capturing the effect of the disappearance of Marxist insurgencies, which tended to generate protracted conflicts (Balcells and Kalyvas 2012). In models 3 and 4, we observe that bigger states have longer civil wars, but also that military personnel has a negative impact on civil war duration. This is consistent with Cunningham *et al.* (2009) finding that stronger states fight shorter wars.

We replicate the analysis with a same Weibull regression model using the PRIO100 dataset (Table 2).[11] Irregular conflicts are again significantly longer than the other two types, and this effect is very robust to the inclusion of controls. Post Cold War is again significant and negative. The remaining variables in the models (except for the dummy for Latin America in model 4) are not statistically significant.

Overall, our tests support H1: irregular conflicts are the longest. We do not however obtain evidence that SNC conflicts last longer than conventional ones. Our analysis suggests that technologies of rebellion are a robust variable in explaining civil war duration and that the decline of irregular conflicts following the end of the Cold War is transforming civil wars from "never-ending wars" (Hironaka 2005) into more tractable conflicts. Our results are also consistent with a set of previous findings, namely that civil wars in Asia are longer on average (Fearon 2004), since irregular wars are predominant in this continent; or that civil war are shorter following the end of the Cold War (Strauss 2012), given that irregular wars and Marxist insurgencies demise after 1990. At the same time, we provide a theoretically more general and elegant way to make sense of these findings.

CIVIL WAR SEVERITY

To test H2, we use data on battlefield deaths by Lacina and Gleditsch (2005),

conflicts that have not ended, the results we obtain are slightly different, but the patterns are the same: the total average is 103 months. The mean is 140 months for irregular wars, 99 months for SNC, and 44 months for conventional wars.

[10] Despite there is some correlation between this variable and technologies of rebellion (Kalyvas and Balcells 2010), this allows to capture potential unobservables before and after the end of the Cold War (for example, international mediation). We have run the analyses without this dummy and the results, which are available upon request, are consistent.

[11] For the PRIO100 dataset, we use Maddison's (2008) thousands of 1990 international $, for GDP data, because it minimizes the number of missing cases. We however run the same regressions with Fearon and Laitin (2003)'s GDP per capita, as well as Penn World Tables 7 (Heston *et al.* 2011). The results are consistent.

TABLE 1. Weibull Regression on Civil War Duration (TR Dataset)

	M1	M2	M3	M4
Irregular	1.20***	0.89***	0.66**	0.66**
	(0.23)	(0.33)	(0.32)	(0.32)
SNC	0.83**	0.55	0.46	0.54
	(0.38)	(0.38)	(0.35)	(0.38)
Post 1990		-0.59*	-0.64**	-0.62*
		(0.31)	(0.31)	(0.32)
Rough Terrain		0.022	0.020	0.087
		(0.099)	(0.091)	(0.097)
Population		0.088	0.33***	0.28**
		(0.10)	(0.11)	(0.12)
GDP per capita		0.15	0.17	0.31*
		(0.13)	(0.12)	(0.16)
Oil		-0.33	-0.48	-0.47
		(0.39)	(0.39)	(0.38)
Ethnic Fract.		0.80*	0.58	0.37
		(0.45)	(0.39)	(0.50)
Democracy		0.090	-0.063	-0.047
		(0.39)	(0.38)	(0.40)
Military Personnel			-0.00072***	-0.00061***
			(0.00018)	(0.00018)
E.Europe				0.028
				(0.65)
Asia				1.00**
				(0.50)
MENA				0.47
				(0.59)
South Saharan Africa				0.96
				(0.62)
Latin America				0.34
				(0.46)
Constant	3.68***	2.51**	0.67	0.16
	(0.19)	(0.98)	(1.05)	(0.92)
Ln_p				
Constant	-0.17***	-0.20***	-0.16**	-0.16**
	(0.061)	(0.069)	(0.072)	(0.073)
Observations	1206	899	899	899

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 2. Weibull Regression on Civil War Duration (PRIO100 Dataset)

	M1	M2	M3	M4
Irregular	0.85***	0.82***	0.80***	0.75***
	(0.16)	(0.20)	(0.20)	(0.23)
SNC	-0.12	-0.20	-0.19	-0.24
	(0.30)	(0.43)	(0.43)	(0.43)
Post 1990		-0.32*	-0.32*	-0.37*
		(0.18)	(0.18)	(0.19)
Rough Terrain		0.14	0.13	0.060
		(0.093)	(0.093)	(0.10)
Population		-0.027	0.037	0.11
		(0.074)	(0.11)	(0.11)
GDP per capita		-0.0067	-0.0077	-0.014
		(0.042)	(0.043)	(0.044)
Oil		-0.38	-0.39	-0.48
		(0.27)	(0.27)	(0.30)
Ethnic Fract.		0.30	0.17	0.28
		(0.45)	(0.48)	(0.51)
Democracy		0.0016	0.0016	0.00097
		(0.0033)	(0.0033)	(0.0033)
Military Personnel			-0.00025	-0.00030
			(0.00030)	(0.00025)
E.Europe				0.86
				(0.60)
Asia				0.52
				(0.51)
MENA				0.97*
				(0.58)
South-Sah. Africa				0.66
				(0.57)
Latin America				1.09**
				(0.55)
Constant	3.44***	3.35***	2.90***	1.66*
	(0.11)	(0.69)	(0.94)	(0.97)
ln_p				
Constant	-0.0056	-0.00085	0.0021	0.031
	(0.053)	(0.059)	(0.059)	(0.054)
Observations	902	611	611	611

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

which includes combatants and civilians killed by means of violence (vis-à-vis deaths in rioting, genocide or one-sided violence).[12] Table 3 shows the average values of this variable by technology of rebellion, normalized by months of conflict. Consistent with our expectations, we see that conventional conflicts are the most lethal technology of rebellion (with an average 3,038 deaths per month of conflict); these are followed by irregular civil wars (with 1,258 deaths/month) and SNC (1,015 deaths/month).

log of this variable in the regressions.[14] In the first model (Table 5), our main independent variable is included in the form of dummy variables for SNC and conventional conflicts (we leave irregular conflict as the base category here). As before, in the second model, we include a number of standard control variables: Post 1990, Population (in log); Democracy (lagged one year); Oil; Ethnic Fractionalization; Rough Terrain, and GDP per capita (Fearon and Laitin 2003). We also include duration of the civil war, in

TABLE 3. Average Battlefield Deaths per Month, by Type of Warfare (TR Dataset)

	Conventional	Irregular	SNC
Battledeaths/Month	3,038.127 (7,527.209)	1,257.908 (3,737.396)	1015.103 (2,446.426)
Observations	*36*	*53*	*9*

Sources: Authors' compilation; Lacina and Gleditsch (2005)

Table 4 displays civil war severity by technology of rebellion, using the data in the PRIO100 dataset (since these are conflict-years, we do not control for conflict duration). The result is consistent with H2: conventional conflicts are significantly more severe in the battlefield than the two other types: they produce on average 17,335 deaths, while irregular produce on average 5,804 deaths, and SNC 1,234 deaths.[13]

To further test these bivariate findings, we estimate the determinants of battle deaths; following Lacina (2006), we use the months. In a third model, we also include regional dummies (with Western Europe & Japan as the base category).

Contrary to our expectations, our analysis does not generate significant results for the technologies of rebellion, perhaps because civil war duration has such an important impact on severity—indeed, duration is the single most significant and robust variable accounting for civil war battle related deaths. The end of the Cold War decreases deaths, and so does democracy, which is consistent with Lacina (2006). Western Europe has a significant effect, and this is driven by the Greek civil war in the 1940s, which generated around 154,000 battledeaths. When we look at the results of the OLS estimation on the PRIO100 dataset (Table 6), we find that they are consistent with our expectations and with Table 3: compared to irregular conflicts, conventional ones are significantly more lethal (this result is however not robust to the inclusion of

[12] This variable takes a minimum value of 50 (for the case of Djibouti 1991), a maximum value of 2,097,705 (for the case of Vietnam 1960-1975), and a mean of 70,328.66. We have data on battledeaths for only 98 cases in our sample of 147 civil wars. The missing cases are distributed the following way: 14 conventional wars (28.5% of them), 26 irregular wars (33.3% of them), 9 SNC wars (45% of them).

[13] The reason why the number of deaths is much higher in the PRIO100 dataset is that this includes anti-colonial wars, which are not included in the TR dataset.

[14] We run robustness checks with the absolute number of deaths, and the results do not substantively change.

TABLE 4. Average Battlefield Deaths, by Type of Warfare (PRIO100 Dataset)

	Conventional	Irregular	SNC
Total Battledeaths	17,334.77 (54876.5)	5,803.97 (19131.2)	1,234.217 (2079.076)
Observations	*122*	*757*	*23*

Sources: Authors' compilation; Lacina and Gleditsch (2005)

TABLE 5. OLS on Battledeaths (TR dataset)

	M1	M2	M3
Conventional	-0.39 (0.42)	0.38 (0.44)	0.37 (0.51)
SNC	-0.36 (0.65)	0.67 (0.64)	1.16* (0.69)
Duration (Months)		0.0086*** (0.0022)	0.0096*** (0.0025)
Post 1990		-0.71 (0.55)	-1.27* (0.75)
Population		0.23* (0.14)	0.24 (0.18)
Democracy		-1.26** (0.55)	-1.59*** (0.55)
Oil		0.21 (0.48)	-0.26 (0.51)
Ethnic Fract.		-0.65 (0.74)	-0.46 (0.77)
Rough Terrain		0.0034 (0.0083)	-0.000048 (0.0092)
GDP per capita		-0.020 (0.17)	-0.16 (0.26)
E.Europe			-2.63 (1.64)
Asia			-4.08*** (0.70)
MENA			-3.80*** (0.88)
South-Sah. Africa			-4.47*** (0.80)
Latin America			-4.24*** (0.78)
Constant	9.66*** (0.25)	6.81*** (1.35)	11.0*** (1.63)
Observations	98	92	84

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 6. OLS on Battledeaths (PRIO100 Dataset)

	M1	M2	M3
Conv	0.94***	0.29*	0.19
	(0.17)	(0.17)	(0.19)
SNC	-0.61**	-0.59*	-0.50
	(0.24)	(0.33)	(0.34)
Post 1990		-0.59***	-0.54***
		(0.14)	(0.14)
Population		0.095**	-0.11*
		(0.046)	(0.064)
Democracy		-0.92***	-0.71***
		(0.16)	(0.16)
Oil		0.57***	0.76***
		(0.18)	(0.17)
Ethnic Fract.		-1.52***	-1.75***
		(0.33)	(0.33)
Rough Terrain		0.072	0.25***
		(0.064)	(0.077)
Gdp per capita		-0.21***	-0.15***
		(0.024)	(0.030)
E.Europe			-0.92*
			(0.48)
Asia			-0.030
			(0.43)
MENA			-1.52***
			(0.37)
South-Sah. Africa			-0.59
			(0.46)
Latin America			-1.44***
			(0.42)
Constant	7.02***	7.79***	9.90***
	(0.060)	(0.40)	(0.73)
Observations	913	624	624

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

regional dummies). Importantly, Table 6 also shows that when compared to irregular conflicts, SNC conflicts are significantly less lethal in the battlefield.[15]

[15] This table also provides significant results for control variables such as Democracy and Population (as before, although Population takes a negative sign in Model 3), Oil and Rough Terrain (with a positive effect), and Ethnic Fractionalization and GDP per capita (with a negative effect). The MENA and Americas dummies also take a negative sign.

CIVIL WAR OUTCOMES

Observers have noted a striking change in how civil wars end after the end of the Cold War. In earlier periods, civil wars were more likely to end in a decisive way, with military victory for one side or the other (Walter 1997); in the 1990s, however, negotiated settlements became much more common (Toft 2010). At the same time, during the last decade, there has been a progressive increase in incumbent victories (Figure 3—Figure 4 confirm these trends). It seems that the world has become a much

safer place for incumbents—at least those who are challenged by military means.[16] Can we make sense of these developments by taking technologies of rebellion into account?

face the best odds in conventional wars. With the TR dataset, we observe that 64% of irregular wars are won by incumbents; in contrast, circa 20% of irregular wars are won by the insurgents. About 30% of

FIGURE 3. Civil War Outcomes (% within decade) (TR dataset)

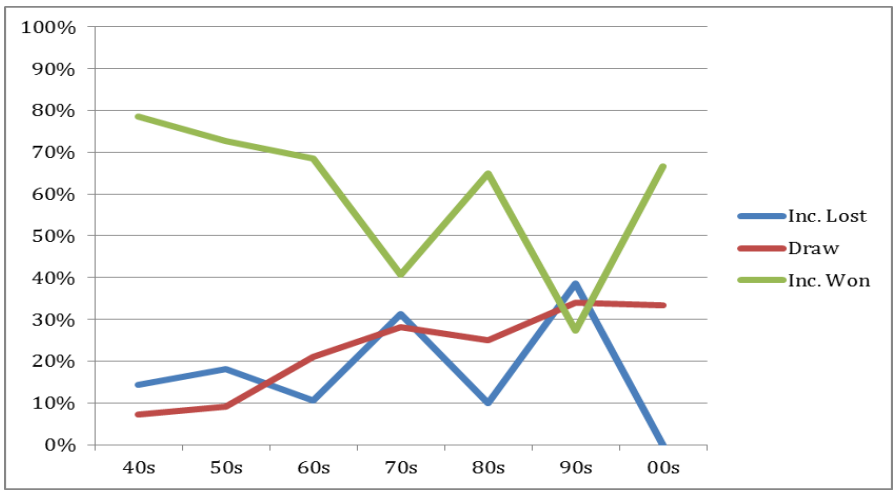
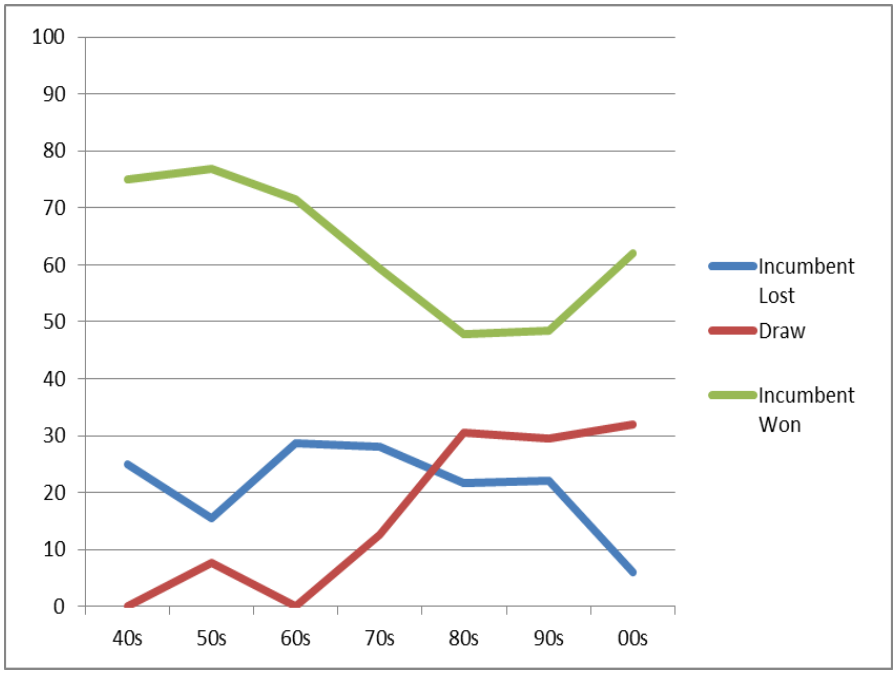


FIGURE 4. Civil War Outcomes (% within decade) (PRIO100 dataset)



In addition, both figures 5 and 6 suggest that irregular conflicts are much more likely to be won by incumbents compared to the other two types of conflict and that rebels

conventional conflicts end with an incumbent defeat. What is also very interesting to note here is that SNC conflicts are the ones most likely to end in draws: 55.56% of them do. These patterns are similar with the PRIO100 dataset and are largely consistent with the evolution of civil wars following the end of the Cold

[16] Chenoweth and Stephan (2011) show that non-armed challenges tend to be much more effective compared to armed ones.

War, as the rise in negotiated settlements appears to be associated with the rise of

FIGURE 5. Technologies of Rebellion and Civil War Outcomes (TR dataset)

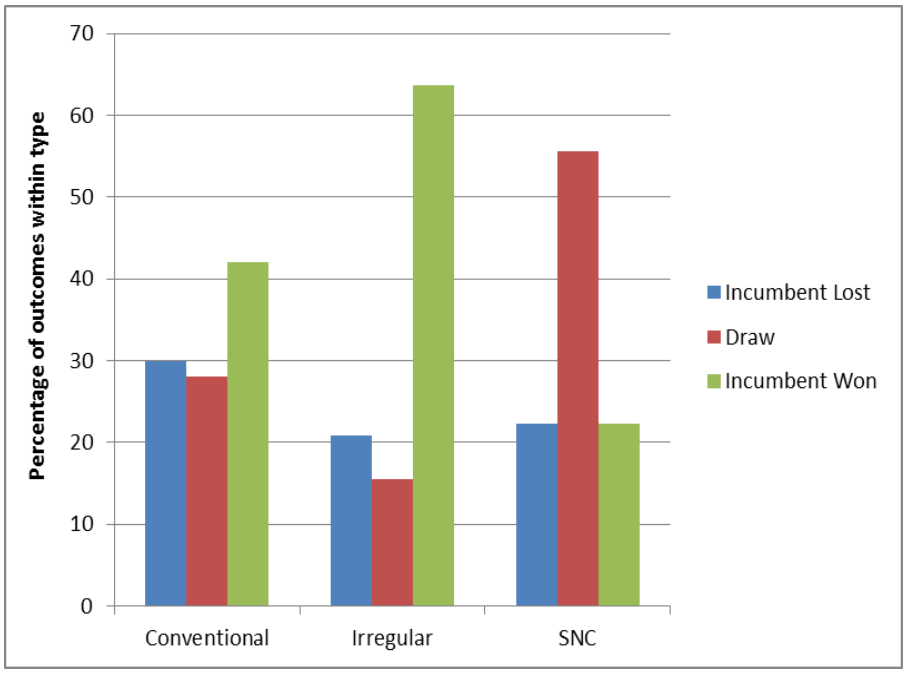
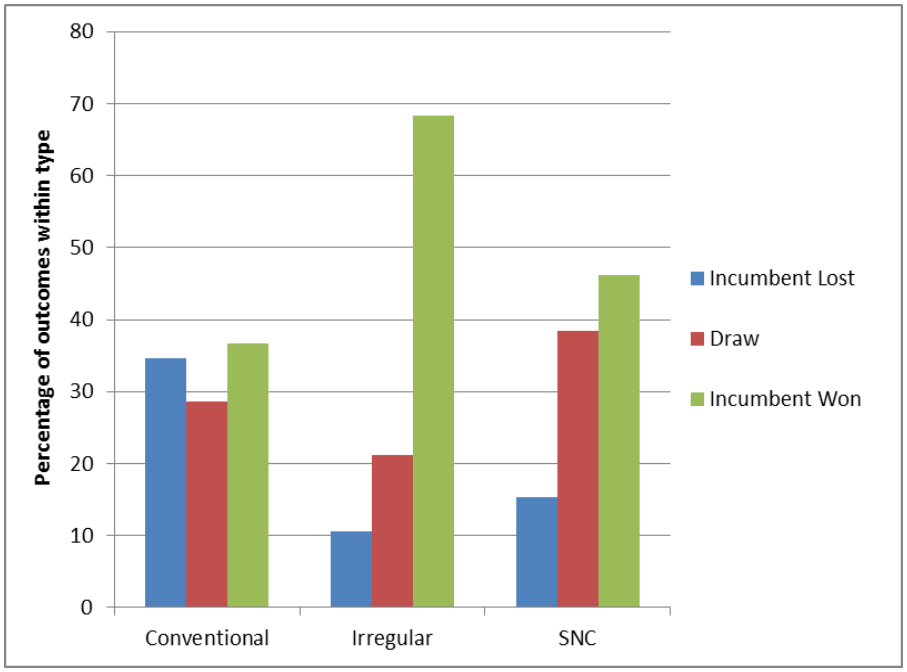


FIGURE 6. Technologies of Rebellion and Civil War Outcomes (PRIO100 dataset)



SNC conflicts. At the same time, the conventional conflicts of the last decade appear to have worked much more in favor of the incumbents than in the past.

Moving into a multivariate setting, Tables 7 and 8 confirm these patterns. We run multinomial logit regressions on the categorical dependent variable Outcomes (with value 0 if Incumbent Lost, 1 if Draw, and 2 if Incumbent Won).[17] We observe

[17] We have coded this variable using Lyall and Wilson's (2009) coding rules, but we have some discrepancies on some cases (see Online

that incumbents are more likely to lose in conventional and SNC conflicts compared to irregular ones. Though this is not significant across all specifications: when we include the Post 1990 dummy, this captures the effect of the technologies of rebellion, which lose significance.[18] The results however go in the same direction: post Cold War conflicts are more likely to generate incumbent defeats. Again, compared to irregular conflicts, conventional and SNC conflicts generate more draws (and much more for SNC compared to conventional conflicts: the coefficient is substantively larger and more significant for this variable). This is consistent to the inclusion of the Cold War dummy, as well as the rest of controls in Model 2, which indicates that the effect of Technologies of Rebellion is independent of the changes in the international environment associated to the end of the Cold War. The results are consistent in the analyses with the PRIO100 dataset, and they confirm H3: conventional and SNC conflicts are likely to produce more rebel victories compared to irregular conflicts. At the same time, we also observe that these conflicts, and in particular, SNC conflicts, are significantly more likely to lead to draws, vis-à-vis incumbent victories.

Put differently, we find that incumbents fighting symmetric wars (conventional and SNC) are more likely to make concessions than incumbents fighting asymmetric wars (irregular)—a result that supports an interpretation of the outcomes of civil conflicts as a function of the military capacity of the rival sides.

These findings are important from a theoretical perspective because they challenge a widespread understanding of irregular war as being the ideal weapon of the weak, and counterinsurgency as being prone to failure (Lyall and Wilson 2009; Record 2007; Arreguin-Toft 2005; Mack 1974). In that respect, and from this particular perspective, irregular war appears to approximate terrorism than previously thought—terrorism being also associated with a high incidence of rebel defeats (Abrahms 2006). We find instead that irregular war is by and large a process that stacks the odds of victory in favor of governments rather than rebels. It would seem that the perception of irregular war as a rebel-friendly mode of war was a flawed generalization derived from a few prominent and widely publicized cases (China, Cuba, Vietnam) and the literary talents of E. T. Lawrence. Furthermore, by combining our findings on duration and outcomes, we can make better sense of the widespread perceptions that surround irregular wars by distinguishing two dimensions that have been blended together: the "quagmire" and the "ideal weapon of the weak" dimensions. Our findings confirm the perception that irregular wars are "difficult," but only because they can be long-lasting conflicts rather than because they place incumbents at a disadvantage.

CONCLUSIONS

Our analysis makes several contributions. First, we confirm the importance of technologies of rebellion as a variable that could be gainfully incorporated into the study of civil wars. By capturing the interaction and military capacities of rebels and states in a simple way and by encapsulating a host of distinct features that characterize three types of conflict, this variable helps make sense of major dependent variables in the literature on civil wars: duration, severity, and war outcomes.[19] In some cases, technologies of rebellion play a significant role along other variables, and in others this variable is capable of subsuming previous findings and shed light on how to interpret them. Altogether, it helps supply a new angle from which to approach civil conflicts.

Second, technologies of rebellion help us anticipate the possible evolution of civil conflict. If we are right, then civil wars are becoming shorter, yet not necessarily less

Appendix for the details). We nonetheless use their coding for robustness checks.

[18] In the Online Appendix we display these estimations without Post 1990 dummy. We have also included the results with Lyall and Wilson's (2009) outcomes coding.

[19] Technologies of rebellion capture two dimensions: relative capabilities and type of interaction and hence cannot be operationalized just as relative capabilities.

TABLE 7. Mlogit on Outcomes (TR dataset)

	M1	M2	M3
Incumbent_Lost			
Conv	0.82*	0.35	0.21
	(0.44)	(0.54)	(0.72)
SNC	1.36*	0.18	0.45
	(0.73)	(0.87)	(1.21)
Post 1990		1.74***	2.56***
		(0.58)	(0.94)
Population		0.0049	0.0019
		(0.0096)	(0.015)
Democracy		-0.18	-0.73**
		(0.16)	(0.29)
Oil		-0.10	0.19
		(0.17)	(0.34)
Ethnic Fract.		-1.22	-0.85
		(0.77)	(1.09)
Rough Terrain		-0.21	0.30
		(0.89)	(1.25)
Gdp per capita		-0.62	-0.51
		(0.72)	(0.94)
E.Europe			12.9***
			(1.77)
Asia			13.3***
			(1.34)
MENA			10.5***
			(1.94)
South-Sah. Africa			12.2***
			(1.66)
Latin America			12.8***
			(1.59)
Constant	-1.17***	0.78	-7.09**
	(0.29)	(1.70)	(3.08)
Draw			
Conv	0.99**	0.87	0.84
	(0.47)	(0.57)	(0.65)
SNC	2.41***	1.74**	1.75*
	(0.66)	(0.78)	(1.05)
Post 1990		1.17*	1.97**
		(0.64)	(0.95)
Population		0.0061	-0.0049
		(0.0095)	(0.014)
Democracy		-0.20	-0.52*
		(0.18)	(0.27)
Oil		-0.18	0.19
		(0.24)	(0.40)
Ethnic Fract.		-1.36*	-1.57
		(0.77)	(1.07)
Rough Terrain		0.86	1.00
		(0.98)	(1.41)
Gdp per capita		0.18	-0.31
		(0.63)	(0.88)
E.Europe			12.1***
			(1.81)
Asia			13.0***
			(1.52)
MENA			11.3***
			(1.70)
South-Sah. Africa			12.0***
			(1.78)
Latin America			12.4***
			(1.60)
Constant	-1.44***	0.16	-9.03***
	(0.33)	(1.94)	(3.06)
Observations	145	133	99
Pseudo R^2	0.061	0.153	0.219

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 8. Mlogit on Outcomes for final war year (PRIO 100 data)

	M1	M2	M3
Incumbent Lost			
Conv	1.47***	0.92	0.70
	(0.41)	(0.57)	(0.58)
SNC	0.83	-0.52	-0.45
	(0.90)	(1.27)	(1.50)
Post 1990		0.39	0.31
		(0.48)	(0.57)
Population		0.058	0.14
		(0.20)	(0.23)
Democracy		-0.28*	-0.63***
		(0.15)	(0.20)
Oil		-0.11	-0.14
		(0.11)	(0.16)
Ethnic Fract.		0.072	0.64
		(0.60)	(0.71)
Rough Terrain		-1.27	-1.24
		(0.85)	(0.99)
Gdp per capita		-1.36*	-1.43*
		(0.76)	(0.76)
E.Europe			13.7***
			(1.90)
Asia			12.6***
			(1.88)
MENA			10.4***
			(1.97)
South-Sah. Africa			11.6***
			(2.01)
Latin America			11.9***
			(1.94)
Constant	-1.52***	2.38	-6.52**
	(0.24)	(1.60)	(2.78)
Draw			
Conv	1.03**	1.00*	0.88
	(0.42)	(0.57)	(0.61)
SNC	1.69**	0.90	0.93
	(0.68)	(0.85)	(0.98)
Post 1990		0.75	1.22**
		(0.49)	(0.51)
Population		-0.049	0.081
		(0.18)	(0.21)
Democracy		-0.24	-0.52**
		(0.17)	(0.22)
Oil		0.10	0.067
		(0.090)	(0.12)
Ethnic Fract.		-0.88	-0.36
		(0.72)	(0.74)
Rough Terrain		0.28	0.63
		(1.07)	(1.16)
Gdp per capita		-0.26	-0.58
		(0.55)	(0.69)
E.Europe			-2.22
			(1.60)
Asia			-2.69
			(1.71)
MENA			-4.30***
			(1.49)
South-Sah. Africa			-3.21*
			(1.74)
Latin America			-2.80*
			(1.63)
Constant	-1.28***	0.66	5.66**
	(0.21)	(1.56)	(2.85)
Observations	212	148	148
Pseudo R^2	0.047	0.119	0.189

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

lethal, and while being less likely to be biased toward the status quo than in the past, they are more likely to end with some kind of draw. All these factors should enhance the ability of international organizations to intervene in some productive capacity (Doyle and Sambanis 2006). To put it in a different, and more forceful way, civil wars do no longer appear to be the "forever wars" and "endless quagmires" to which we were accustomed. In other words, we are questioning the enduring fascination of Vietnam as the paradigmatic case of civil war. In many ways, the Vietnam War is an outlier as far as present conflicts go (and ironically, our analysis also suggests that Afghanistan is likely to be a similar outlier). These findings hold two interesting implications. On the one hand, governments appear to be losing the advantage they used to have in irregular wars, because these conflicts (and their huge incumbency advantage that went with them) are disappearing. This is partly an effect that states involved in civil wars today are weaker compared to those that were in a similar situation during the Cold War (Kalyvas and Balcells 2010). On the other hand, however, the rise of conventional and SNC wars is leading to more draws between governments and rebels which provides an alternative explanation for the observed rise in negotiated agreements in the post-Cold War period, one stressing technology of rebellion and military capacity as opposed to international diplomacy.[20]

Third, our analysis opens novel avenues for further theoretical development, based on the cross-fertilization of the micro and macro research programs. To begin with, we can draw scope conditions for some recent findings in the literature. For instance, the observation that civil conflicts tend to feature high levels of gratuitous violence including rape, as well as opportunistic behavior and looting (Cohen 2013, Weinstein 2007, Kaldor 2006) could be qualified; this type of violence is perhaps associated with SNC conflicts rather than civil wars in general. In contrast, irregular wars, are likely to display violence that, while brutal and extensive, follow a different logic, given the strategic considerations induced by the strong dependence of armed actors on the behavior of the civilian population (Kalyvas 2006).[21] If this is indeed the case, then the good side of this point is that at least SNC wars are shorter. The next step, of course, would be to empirically explore the social profile of armed groups under the three technologies of rebellion.

Lastly, our analysis points to a deeper understanding of how civil wars may affect societies and states. As Tilly (1992) famously quipped, wars make states. Our analysis suggests how civil wars may fit into this perspective. On the one hand, by erupting in countries with relatively stronger states, which they challenge by means of peripheral state-building, irregular wars may serve to reinforce the states they challenge. On the other hand, conventional, and especially SNC wars, tend to challenge states that are already weak: in this sense they degrade them. In other words, Tilly's intuition may well be exactly right, but only when it comes to irregular civil wars—not wars in general. This is another way in which a technologies of rebellion-based perspective helps place scope conditions in existing insights and, thus contributes to linking micro and macro level processes.

[20] We include external (foreign) support as a control in a set of robustness checks, and this variable does not show to have any relevant impact in any of our dependent variables. Also, despite we use here a static approach, when we delve into over-time variation in the Technologies of Rebellion we find that there is a lot of stability along time, within types.

[21] In conventional civil wars, the high organizational capacity of the armed groups together with the non-strategic nature of violence in a civil war fought in the frontlines (Balcells 2010) make this gratuitous violence less prevalent.

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