8 Civil wars and guerrilla warfare in the contemporary world: toward a joint theory of motivations and opportunities

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The use of systematic and organized violence to effect political change is a generalized phenomenon around the world. Singer and Small (1994) put at 137 the number of civil wars that killed at least 1,000 during the period from 1820 to 1990. The death toll from civil wars fought after World War II has been estimated at a minimum of 16.2 million (Fearon and Laitin 2003). According to the data gathered by Banks (1997), between 1919 and 1997 there were over 500 spells of guerrilla warfare around the world. In the same period of time, close to 1,500 politically motivated assassinations or attempted assassinations of high government officials or politicians were committed – at a rate of one every three weeks. Banks codes a similar number of revolutionary or rebellious acts against the central government and about 4,000 political riots – or almost one per week.

A first generation of researchers working on the causes of political violence emphasized the presence of "structural" causes to explain civil wars and guerrilla warfare. Modernization scholars traced rebellion to economic inequality (Muller 1985; Paige 1975; Russett 1964) and the impact of economic modernization and the position or claims of particular social groups (Huntington 1968; Wolf 1969; Gurr 1973). A later line of research related violent conflict to ethnic nationalism (Horowitz 1985; Connor 1994).

More recently, scholars working on civil wars have offered a strong critique of the central assumption made by the former generation of scholars that rebellious activities occur when "grievances are sufficiently acute that people want to engage in violent protest" (Collier and Hoeffler 2001, 2). According to this position, the presence of economic resentments, ethnic antagonisms, and personal or clique grudges are too

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widespread to specify the cases in which political violence will erupt. Similarly, to maintain that all cases of violence point to the existence of *exaggerated* grievances is also useless since the concept (and presence) of "acute grievances" is particularly difficult to pin down. Hence, in a world full of "grievances," researchers must abandon any examination of the political and economic motivation of actors to focus on the "opportunity" structures that facilitate the actual outbreak of violence. Accordingly, Collier and Hoeffler (1999; 2001) have explained the occurrence of civil wars as a function of greed (at least in their initial work). In their account greed is fueled by the abundance of "natural resources" (measured through the percentage of primary products) and by the relatively low life chances of potential rebels (proxied by rates of secondary-school enrollment for males). In turn, Fearon and Laitin (2003, 75–76) have hypothesized that "financially, organizationally, and politically weak central governments render insurgency more feasible and attractive due to weak local policing or inept and corrupt counterinsurgency practices" and then concluded that civil wars happen in "fragile states with limited administrative control of their peripheries" (88).

There is no doubt that, as forcefully stated by the political opportunities' scholars, the first generation of work on civil wars and guerrilla warfare was too broad and even ambiguous about the causes and agents that motivated the generation of systematic and organized political violence. Yet the alternative theory, based on the idea of strictly stressing the opportunities that may be open to potential insurgents, remains equally unconvincing, at least when interpreted in a strict manner. Civil war and guerrilla onsets may be more likely in mountainous terrain and in mining areas. Weak police and military forces are an invitation to chaos and violence. Still, Switzerland and Norway have extremely mountainous terrain (and their per-capita income was not very high in the nineteenth century, at least by post-World War II standards), but they have not undergone any civil war in the past 150 years – Switzerland's civil war of 1848 resulted in a handful of deaths and would clearly not qualify as such in any of the current datasets we have. Many nineteenth-century and twentieth-century nations have sustained long spells of peace without particularly well-developed bureaucracies and road systems.

A more sensible theoretical approach to explain systematic political violence is to acknowledge that different opportunity structures constrain or facilitate the eruption of violence, in the same way they prevent or ease the commission of a crime. But, to paraphrase Collier and Hoeffler (2001), the commission of the crime itself requires some motives, which we still need to identify if we wish to make serious

progress in the determination of the causes of political violence. In other words, a convincing model of civil war and guerrilla warfare requires, as with almost all crimes, both motivation and opportunity.

Accordingly, this chapter departs from the assumption that civil wars and guerrilla warfare occur whenever the expected net gains from employing it exceed the net gains derived from accepting the status quo among some political actors (such as unions, peasant organizations, a clique of army officers and so on). The status quo is here defined as a situation in which either a section of society holds the (public) monopoly of violence and policymaking uncontested by those that are excluded from the decision-making process or political differences are settled peacefully (through either voting procedures or bargaining) among all parties in contention.

More precisely, the decision to engage in violent activities is a function of two factors. On the one hand, violence becomes more likely as the difference between the benefits accrued under a new regime obtained through the use of violence and the gains obtained under the status quo increases. The use of violence to alter the political and economic status quo increases as the distribution of relatively immobile assets becomes more unequal in any given economy. As income inequality rises, the resistance of the well-off to the introduction of democratic, peaceful means to set government policy simply hardens – the losses they would incur from majority rule would be simply too substantial. Correspondingly, resorting to violence becomes more attractive to those that are excluded from the state apparatus – the prize of victory raises with inequality. Political violence becomes particularly acute in unequal economies in which assets are fixed and are not complementary to the skills of their current owners. In those cases the potential rebels can apply violence to overturn the existing regime with the relative certainty that assets will not be moved out of the country and that the elimination of their owners will not reduce their economic value.[1]

On the other hand, the occurrence of political violence declines as its costs go up, thus accommodating the current literature on civil wars that insists on the key role played by the structure of "political opportunities" within which rebels launch violent actions against the state. As detailed

[1] The literature on greed and civil wars becomes easily embedded in the theory of this chapter as follows. The presence of abundant *natural* resources (rather than all sorts of resources, which, prima facie, could also finance any type of illegal activity) fits squarely with the idea that only fixed assets can be easily expropriated and controlled by the rebels. Educational attainment similarly points to the type of assets in society and, in a way to be discussed later, to the underlying pattern of income distribution in society.

later, the costs of violence to the parties in contention vary with their organizational and mobilizational capabilities, the military technology they employ, and other factors such as the type of terrain, the distribution of the population, and the infrastructures of the state.

After developing the theory in the first section, this chapter turns to examine its empirical validity. The second section describes the distribution of violence over time and provides a first cut into the underlying causes of violence. The third section tests in a systematic way the theory presented in the first section. The empirical analysis is original in two directions. First, I move beyond current studies of civil wars, which have focused on post-1945 data, by looking at civil wars since the middle of the nineteenth century and guerrilla and revolutionary outbreaks since World War I. Second, I consider more fine-grained measures of the nature and distribution of wealth and I show that several factors, such as per-capita income and ethnic composition, which have been claimed to be strongly correlated to violence, are of little or no interest in more broadly specified models.

Theory

To explore the circumstances that may lead to civil wars and guerrillas, let me proceed in the following manner. I will first characterize the structure of any economy along two dimensions – the level of capital endowment of each individual, and the extent to which capital is mobile and can be actually taxed. I will then consider and discuss the distributional consequences that different political regimes have on different types of individuals (given their position in the economy) and the political strategies they will be likely to adopt. This will allow me to describe the conditions under which they may choose to engage in violent strategies and civil confrontation.[2]

Economic structure

To approximate the economic structure of any country, assume in the first place that assets are distributed unequally. That is, there are different individuals with different skills and assets, and thus income, who choose to work variably. By assumption, in that economy the distribution of skills and incomes is skewed so that the median individual, who is the individual with 50 percent of the others above and below her on the

[2] This discussion follows, in an abbreviated manner, the model developed in Boix (2003).

income ladder, is poorer than the average income individual, that is, the person with the mean income.[3]

In addition to having a particular distribution of assets and income, economies are also defined by their types of assets. Assets vary in an economy according to the extent to which they can be more or less easy to tax. The extent to which assets may be "taxable" will be determined by two factors. In the first place, their specificity, which grows when the difference of the income or returns it generates at home and abroad increase. For example, some assets, such as land or oil wells, are completely specific to the country they are located: they cannot be moved anywhere else. Other assets, such as high skills or money, can be moved abroad to generate rents very similar to the returns they yield at their country of origin. The more specific assets are to the country in which they are being used, the more taxable they are since the cost of moving them abroad (in response to higher taxes) is higher. In the second place, the "taxability" of assets varies with the degree to which the tax authority can monitor any given asset and its return. A fully "taxable" asset is one that cannot be hidden for tax purposes and therefore yields the expected tax return. A nontaxable asset is one whose income flow is hard to monitor and whose owner can easily escape from the tax enforcement authority – this is the case, for example, of certain professional skills, the provision of consulting services, or the transactions of small shopkeepers.

Taxation

Assume further that in this economy the state sets a linear tax income.[4] All tax revenues are redistributed lump sum (i.e. an equal amount) to everyone. That transfer, which is the total tax revenue divided by the number of individuals in the economy, equals the taxes paid by the voter with average income. As a result, all the individuals poorer than the average income will favor a positive tax since the transfer they will receive will be larger than the amount they pay. Conversely, all the individuals richer than the average income voter will oppose a tax.

In a democratic setting, with a one-person one-vote rule, and following the median voter theorem, the policy that is adopted is the one most preferred by the median voter. Since the income of the median individual is lower than the average income, the result will be a positive

[3] As a matter of fact, all real world income distributions match this assumption.
[4] The description of the taxation model departs from (and then extends) the optimal taxation mechanism introduced by Meltzer and Richards (1981).

tax and positive transfers. Moreover, the poorer the median voter is relative to the average income individual, the larger the tax rate he will favor, because the difference between the tax he pays and the transfer received becomes larger. In other words, as the income distribution becomes more skewed and unequal, the tax pressure should increase.

The level of taxation will only be constrained by two parameters. First, the median voter is bound by the distortions that come from tax rates: the median voter will never impose taxes that lead to an overall decline in total revenue.[5] Second, he will be constrained by the mobility and taxability of assets. As capital becomes more mobile, that is, as it can be moved abroad to obtain a return equal to the domestic return, the tax rate will decline since otherwise the capital holder would have an incentive to transfer his assets abroad. Similarly, whenever capital can be easily hidden from the state or it becomes of a kind that can only be used by its owner, the temptation to confiscate it also declines.

Political institutions

Economists have always treated the voting rule of this taxation model (where all individuals vote and the median voter determines the tax policy) as a fixed or exogenous parameter. Yet this theoretical decision is wrong.[6] The choice of the voting rule precedes the actual process of voting about the tax rate and the distribution of assets. As a matter of fact, all political actors determine who will vote (and how will the vote take place) informed by the tax outcomes they anticipate will take place under each alternative voting rule. Rich voters will be interested in excluding the poorest voters (and thus moving the median voter toward them) to minimize the tax to be paid. Conversely, the voters with the low incomes will press for their full political participation.

More precisely, as inequality in a given country goes up, the demand and political pressure for redistribution will intensify. As a result, to avoid paying high, quasi-confiscatory taxes, the wealthy will be even more inclined to establish an authoritarian regime that excludes the majority of the population. Naturally, since the introduction of an authoritarian regime requires bearing some costs of repression, the well-off will only act to exclude the poorest if those repression costs are larger than the taxes they would have paid under a democratic regime. Similarly,

[5] Without this restriction, the median voter would always set the tax rate equal to 1 and hence expropriate from individuals with an income equal to or larger than the average income.

[6] In fact, this mistake explains why the Meltzer-Richards model performs very weakly to explain the level of taxes in the empirical arena.

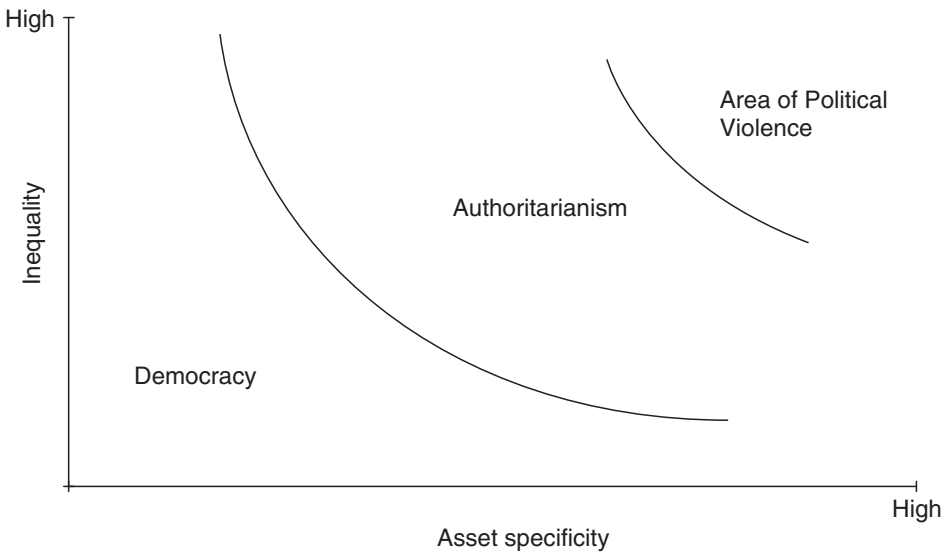

Figure 8.1 Democracy and inequality

as the distribution of income becomes more equal among individuals, redistributive pressures from the poorest social sectors on the well-off voters diminish. The relative costs of tolerating a mass democracy, that is, the taxes they would pay, decline for the holders of the most productive assets to the point that they become smaller than the costs of repression they would have to bear to exclude the majority of citizens. And democracy becomes acceptable to all parties.

The type of political solution that will prevail will also depend on the types of assets in the economy. As assets become less specific (more mobile), the redistributive pressures from noncapital holders on capitalists diminish and, as a result, the likelihood of democracy rises. By contrast, economies with a large proportion of fixed assets, such as the oil countries, will generally remain authoritarian (conditional on having a skewed distribution of income).

To sum up, the combination of the distribution of assets and income and the nature of wealth leads to the set of predictions displayed in Figure 8.1. A stable democracy prevails at low levels of either inequality or specificity of wealth. As the cost of taxation increases (due to increases in wealth inequality and asset specificity), authoritarianism starts to pay off. Finally, for high levels of inequality and asset specificity, authoritarianism becomes the dominant strategy of high-income individuals.

Political violence

For sufficiently high levels of inequality and asset specificity or immobility, political violence will erupt as a systematic means to effect political change. As already pointed above, with growing income inequality and asset specificity, the resistance of the well-off (such as landowners or government officials in control of mining resources in rentier states) to democracy grows – the losses they would incur from majority rule become too large. In turn, those that are excluded from governing and setting taxes have a strong incentive to revolt. At high levels of inequality, the prize of victory is substantial. Political violence will become particularly acute in unequal economies in which assets are fixed and not complementary to the skills of their current owners. In those cases the potential rebels can apply violence to overturn the existing regime with the relative certainty that assets will not be moved out of the country and that the elimination of their owners will not reduce their economic value. In short, political violence will tend to appear in countries located in the upper right-hand corner of Figure 8.1.

Still, the prediction that violence will happen in that region should be simply taken as a probabilistic statement. The potential rebels of highly unequal highly asset-specific economies will only resort to armed action if they believe they have a reasonable chance of winning. Those beliefs are generally formed under conditions of incomplete information. Hence, their guesses or estimations about their probability of success will be shaped by their assessment of the strength of their own organizational capacities and the perceived military capabilities of the state.

It is in this context that the "political opportunities" literature can be fully integrated with a theory of political motivations to pursue a strategy of violent engagement. Certain objective or structural traits, such as the existence of mountainous terrain, inaccessible forests, poor roads, geographically fragmented states (e.g. archipelagos), and so on, will likely play an important role in bolstering the decision to engage in violent activities. Likewise, the availability of finance (in the form of natural resources such as oil wells, diamond mines, or coca plantations) should encourage rebellious activities as well.

Finally, the organizational and mobilizational capacity of insurgents is central in explaining when violent rebellions will flare up and progressively transform into guerrilla warfare or even civil wars. We can put this point in a slightly broader historical context. It is reasonable to assume that in many countries their underlying conditions of high inequality and wealth specificity did not change substantially from the eighteenth to the twentieth century or that, at least, they did not worsen dramatically. Yet

the number, length, and harshness of civil wars, guerrillas, and rebellious outbreaks increased over time – eventually culminating in all the large civil wars of the mid-twentieth century such as those fought in Russia, China, or Vietnam. Such a secular, long-durée trend toward more violence was triggered by the growing agitation and organization of certain social sectors such as the peasantry, which had remained isolated and poorly communicated until that time. With the advent of "political modernization" (functional states, city networks, and literate minorities), a set of "enlightened" elites provided those that were discontent with the means to challenge the status quo (or, in a different interpretation, pushed them to engage in violence). Still, those "revolutionary vanguards" were only successful when certain conditions obtained on the ground. In the absence of broad inequalities, violence hardly evolved into civil war. To put it in other words, a theory that dismisses motivation and that only emphasizes the supply of the means to be violent (either because the state has imploded or because some Polpotian characters have appeared to force, by pure intimidation, a segment of the population) would be unconvincing. It could not explain the empirical patterns I unveil in the third section.

The distribution of political violence

To explore the validity of the explanatory model, I examine data on the occurrence of civil wars and guerrilla warfare. The data for civil wars come from two datasets: the dataset of the "Correlates of War" (COW) project developed by Singer and Small (1994), which includes data from 1816 through 1992, and the dataset built by Fearon and Laitin (2003), spanning from 1945 to 1999. Generally speaking, a civil war is defined as a conflict in which military action took place between agents of (or claimants to) a state and organized, nonstate groups who sought to take control of the state (in the entire country or in part of the country) or to change governmental policies, and where at least 1,000 battle deaths resulted from the war.[7] The Fearon-Laitin dataset is more expansive than the COW: for the period 1945 to 1990, whereas the former reports 80 war onsets and over 600 years of civil war, the latter includes 60 war onsets and roughly 400 years of war. The data on guerrillas are taken

[7] Fearon and Laitin (2003) further qualify a civil war as a conflict where at least 100 were killed on both sides. For a full specification of conditions see Fearon and Laitin (2003, 76, footnote 4).

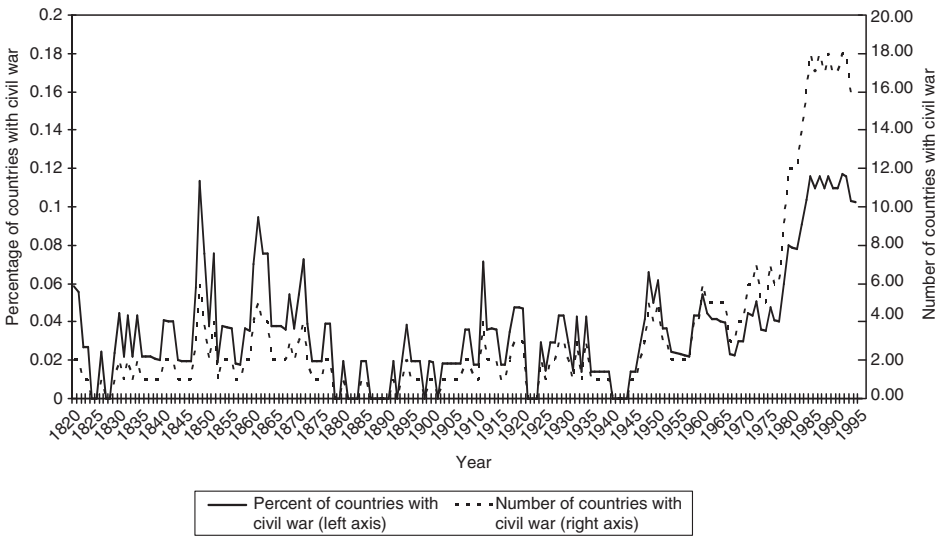

Figure 8.2 Civil wars, 1820–1994

from Banks (1997) and cover the period from 1919 to 1997. Episodes of guerrilla warfare are any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime.

Figure 8.2 shows the number and proportion of sovereign countries with an ongoing civil war (as defined in COW) from 1820 to 1994. The proportion of countries under civil war has been relatively stable – around 2 to 4% for the whole universe of sovereign countries. Within a pattern of general stability, two periods stand out as more conflict-ridden: the middle decades of the nineteenth century and the last quarter of the twentieth century. Spurred by considerable political turmoil over the introduction of liberal institutions in Europe and the construction of new states in America, the proportion of countries at war rose to 5% between 1848 and 1871, with two peaks in 1848 and 1861. Except for a spike around World War I, civil wars became very infrequent from 1880 to 1945. In the postwar period, the COW dataset shows an upward trend, particularly after 1975. The last three decades have been the most turbulent with about 10% of all sovereign countries at war (or an average of 15% in the Fearon-Laitin database).

Figure 8.3 depicts the number and proportion of countries experiencing guerrilla warfare every year. About 10% of all countries suffered a guerrilla movement in the interwar period. The proportion increased to about 15% after 1945, peaked in the late 1960s, and then gradually

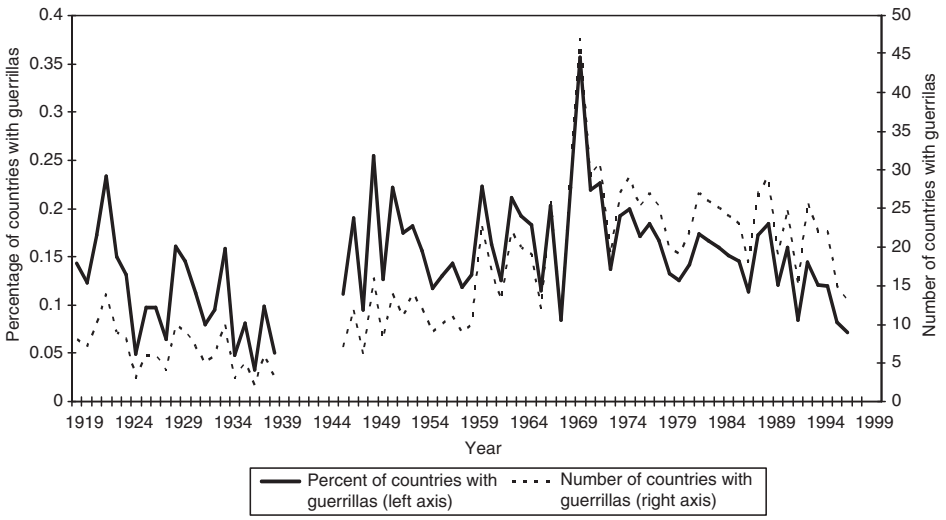

Figure 8.3 Guerrillas, 1919–1997

declined. By 1997 there were guerrillas in thirteen countries or 7% of all sovereign states.

Empirical analysis

The central hypothesis of this essay is that political violence should erupt as income inequality and asset-specificity increase. Additionally, the model also predicts that the costs of choosing violence will shape the level and type of violence. More expensive forms of violence should be rarer. This is indeed true observing the empirical evidence presented in Figures 8.2 and 8.3. Civil wars are less frequent than guerrilla movements. Similarly, better organized states with easy access to all their territory and population should have less violence.

Inequality and asset specificity

Figures 8.4 and 8.5 show the distribution of civil war onsets and guerrilla warfare onsets across the world by the average level of industrialization and urbanization (on the x axis) and the percentage of family farms (on the y axis). The percentage of family farms captures the degree of concentration and therefore inequality in the ownership of land. That measure, gathered and reported by Vanhanen (1997, 48), is based on defining as family farms those "farms that provide employment for not more than four people, including family members, ... that are

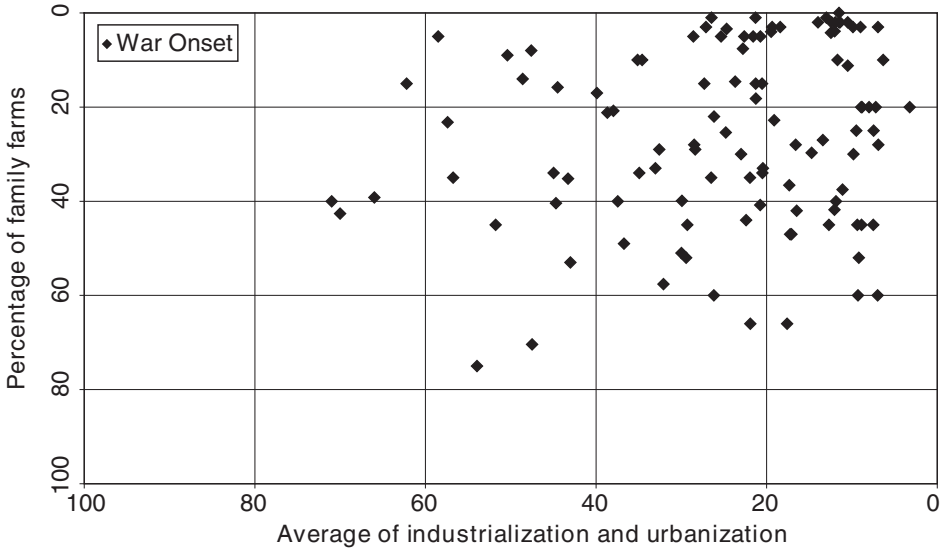

Figure 8.4 Economic structure and civil wars, 1850–1994

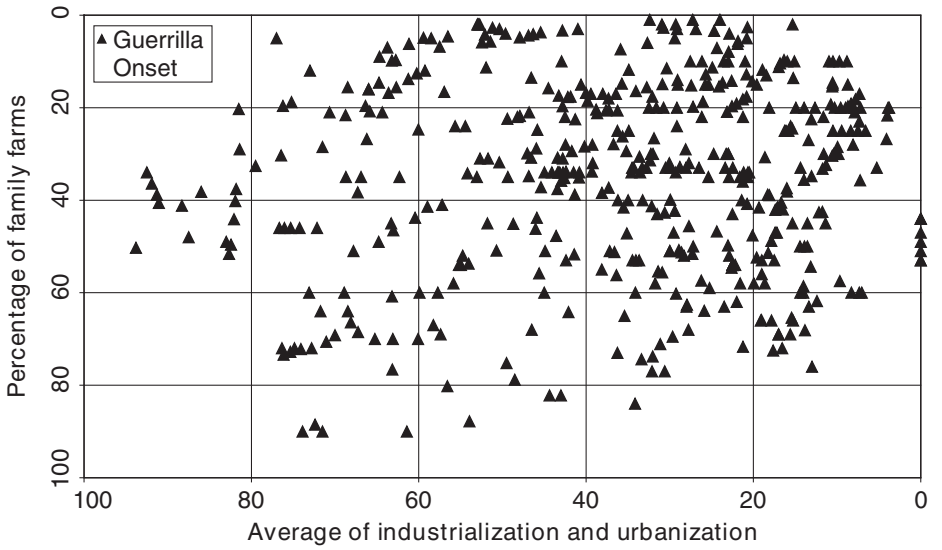

Figure 8.5 Economic structure and guerrillas, 1919–1997

cultivated by the holder family itself and ... that are owned by the cultivator family or held in ownerlike possession." The definition, which aims at distinguishing "family farms" from large farms cultivated mainly by hired workers, is not dependent on the actual size of the farm – the size of the farm varies with the type of product and the agricultural

technology being used.[8] The dataset, reported in averages for each decade, ranges from 1850 to 1999.[9] The average of industrialization (measured as the average of the percentage of nonagricultural population) and the percentage of urban population (defined as population living in cities of 20,000 or more inhabitants) are also taken from Vanhanen and are used to approximate the extent to which assets may be mobile.[10] Both axes have been drawn in the reverse order (decreasing in value as one moves away from the origin) so that the high inequality/high specificity area is in the upper-right corner.

Figure 8.4 plots all the country-year observations from 1850 to 1994 (the black dots) and the cases in which a civil war (as defined by COW) started (marked with the abbreviated name of the country in which it took place). The graph shows considerable dispersion in the combination of how industrialized countries are and how unequal their agrarian sectors are.[11] Most civil wars occur in countries where the agrarian sector is still dominant and land is distributed unequally (basically within the triangle to the right of a diagonal going from no industrialization and less than 50 percent of the land to middle levels of industrialization with no family farms at all). Several cases that are closer to the middle (that is, farther away from the upper-right corner) have considerable oil resources and so conflict there may be related to asset immobility. All in all, the distribution of observed civil war onsets matches quite well the predictions of Figure 8.1.

Figure 8.5 depicts the distribution of guerrilla warfare from 1919 to 1997. The occurrence of guerrillas is more widespread than systematic civil wars but the pattern is still similar: violence is heavily concentrated in unequal agrarian economies.

Civil wars

Although the graphical evidence presented thus far strongly supports the model of the essay, I have not controlled for the impact of important

[8] It varies from countries with 0% of family farms to nations where 94% of the agricultural land is owned through family farms: the mean of the sample is 30% with a standard deviation of 23%. A detailed discussion and description of the data can be found in Vanhanen (1997, 49–51) and the sources quoted therein.

[9] An extensive literature has related the unequal distribution of land to an unbalanced distribution of income. For the period after 1950, and excluding the cases of socialist economies, the correlation coefficient among the Gini index and the percentage of family farms is -0.50.

[10] This average has a mean of 35% and varies from 3 to 99%.

[11] For our purposes (to investigate the origins of violence) the measure is adequate since it is only inequality in the agrarian sector that matters: as assets become less fixed or specific, the incentives to engage decline, even in relatively unequal societies.

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Table 8.1. *Civil wars and guerrilla movements*

	Civil war		Guerrilla warfare			
	Model 1 1850–1994	Model 2 1950–97	Model 3 1950–97	Model 4 1919–97	Model 5 1950–97	Model 6 1950–97
Constant	−1.985***	−3.557***	−3.952***	−2.793***	−3.049***	−2.757***
	(0.687)	(0.747)	(1.001)	(0.369)	(0.435)	(0.544)
Lagged dependent	2.961***	3.530***	3.487***	1.362***	1.368***	1.213**
variable	(0.084)	(0.102)	(0.106)	(0.050)	(0.059)	(0.062)
Percent of family	0.004 (0.004)	0.014***	0.020***	0.003 (0.002)	0.002 (0.003)	0.008**
farms t-1		(0.016)	(0.006)			(0.003)
Index of occupational	0.005 (0.005)	0.003 (0.006)	0.013* (0.007)	0.005** (0.003)	0.003 (0.003)	0.009***
diversification t-1						(0.004)
Family farms t-1*	−0.025**	−0.033***	−0.041***	−0.022***	−0.022***	−0.027***
occup. diversif. t-1	(0.011)	(0.011)	(0.013)	(0.005)	(0.006)	(0.007)
Log (population) t-1	0.096***	0.160***	0.123***	0.170***	0.155***	0.110***
	(0.025)	(0.034)	(0.045)	(0.016)	(0.019)	(0.023)
Log (per cap.	−0.162* (0.092)	−0.059 (0.105)	−0.123 (0.119)	−0.026 (0.047)	0.043 (0.060)	−0.072
income) t-1						(0.068)
Democracy t-1	0.148 (0.100)	0.290** (0.114)	0.243** (0.128)	0.173***	0.244***	0.136*
				(0.056)	(0.066)	(0.072)
Log (percentage			0.053 (0.044)			0.073***
mountainous)						(0.025)
Noncontiguous state			0.263** (0.139)			0.431***
						(0.076)
Oil exporter			−0.058 (0.175)			−0.073
						(0.097)
Ethnic fractionalization			0.643 (0.926)			1.781***
						(0.498)

(Ethnic fractionalization) ^{2}			−0.292 (0.973)			−1.651*** (0.549)
Religious fractionalization			0.879 (0.997)			0.187 (0.558)
(Religious fractionalization) ^{2}			−0.577 (1.200)			−0.066 (0.664)
Percentage of Muslims			0.004* (0.002)			−0.000 (0.001)
Percentage of Catholics			0.003 (0.002)			0.002** (0.001)
Percentage of Protestants			−0.003 (0.005)			−0.008** (0.003)
Growth rate t-2 to t-1			−0.299 (0.744)			−0.068 (0.438)
Number of observations	8453	4435	4240	6242	4066	3937
Log likelihood	−651.24	−390.23	−365.11	−2006.45	868.80	−1328.40
Prob>chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.5832	0.7789	0.7883	0.2344	0.2377	0.2610

Estimation: probit model. Standard errors in parenthesis. ***p<0.01; **p<0.05; *p<0.10.

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variables in the literature such as per-capita income, population, political regime, geography, and ethnic and religious composition. In Table 8.1 I present results on a multivariate analysis of the factors that may influence the eruption of civil war and guerrilla warfare.

For each type of violence I run three models. The first one includes data prior to 1950 (since 1850 for civil wars and since 1919 for the rest of violent events) – this dataset maximizes the number of observations, which range from 8,300 to 6,200 country-years, but cannot include variables such as religious composition or geographical structure for which we only have data after World War II. The second model includes data only for the second half of the twentieth century yet employs the same specification used in the first model. The last model adds a whole battery of controls to the second model. Notice that the coefficients remain very stable across the first two models. In the third model, the interactive coefficient and population go up in size – but that change does not affect the thrust of the essay's argument.

For model 1 (employing pre-1950 data) and model 2 (postwar data), the following independent variables are included:

(1) The lagged value of the dependent variable.
(2) The percentage of family farms.
(3) The index of occupational diversification, that is, the average of industrialization and urbanization.
(4) The interaction of the two previous variables, which should capture the theoretical expectations of the model.
(5) The log value of per-capita income. This variable is built with data reported in the Penn Wold Tables 6.1 (Heston *et al.* 2002), covering the period from 1950 to 1999, plus data from Maddison (1995), which provides observations for the period previous to 1950 (essentially for developed countries and some large Asian and Latin American cases), adjusted to make it comparable with the Heston dataset, and some interpolated data from Bourguignon and Morrission (2002).[12]
(6) The log value of population, taken from Banks (1997).
(7) Democracy. This variable is taken from Boix and Rosato (2001), where all sovereign countries from 1800 to 1999 are coded as either democratic or authoritarian. Countries are coded as democracies if they meet three conditions: elections are free and competitive; the executive is accountable to citizens (either through elections in

[12] For the post-1950 period I use Fearon and Laitin (2003) definition of per-capita income.

presidential systems or to the legislative power in parliamentary regimes); and at least 50 percent of the male electorate is enfranchised.

In the third model (of postwar data), the following variables have been added:

(8) Ethnic fractionalization. This measure is computed as one minus the Herfindhal index of ethnolinguistic group shares, with new data gathered and calculated in Alesina *et al.* (2003).
(9) Religious fractionalization, also computed as one minus the Herfindhal index of religious groups, also taken from Alesina *et al.* (2003).
(10) Percentage of Muslims, Catholics, and Protestants, taken from LaPorta *et al.* (1999).
(11) Economic growth rate (in the year before the observed event).
(12) The log of the percentage of the territory that is mountainous.
(13) A dummy variable coded as 1 if oil represents more than one-third of the country's exports.
(14) A dummy variable coded 1 if the state is composed of non-contiguous territories. The last three variables are taken from Fearon and Laitin (2003).

In Table 8.1 civil war and guerrilla warfare are coded as 1 if there was one of these events in place, 0 otherwise. The estimation is done through probit analysis.[13] For the period from 1850 to 1994 (Table 8.1, column 1) I employ data from COW. For the period after 1950 (columns 2 and 3), I employ the dataset from Fearon and Laitin (2003).

As expected from the model, the interactive term of family farms and nonagrarian assets is statistically significant and has a substantial depressing impact on the occurrence of civil wars. A simulation of the results (in column 1, Table 8.1) is shown in Table 8.2. In countries with either less than 20% of the land held by family farms or with an average urbanization and industrialization below 25%, the probability of a civil war onset is more than 5% over the course of a five-year period. As both land equality and industrialization increase, the probability of a civil war declines quickly. In countries where family farms control more than 50% of the cultivated land and average industrialization and urbanization are also over 50%, the probability of a civil war occurring over a period of five years drops below 1%.

Population increases the probability of a civil war onset. For all other variables at their median values, the probability of a civil war erupting

[13] Logit analysis does not change any of the results.

Table 8.2. *Predicted probability of civil war onset over five years by size of agrarian sector and landholding inequality*

		Share of family farms over total cultivated land				
		10	30	50	70	90
Index of	10	0.07	0.07	0.08	0.09	0.10
occupational	30	0.06	0.05	0.04	0.03	0.03
diversification	50	0.05	0.03	0.02	0.01	0.01
	70	0.04	0.02	0.01	0.00	0.00
	90	0.04	0.01	0.00	0.00	0.00

Simulation based on Table 8.1, column 1.

increases from 1% in a country of about four million inhabitants to 1.4% in a country of twenty million and 3% in a nation of half a billion inhabitants. The positive effect of population on civil wars even increases once we control for ethnic and fractionalization diversity (column 3, Table 8.1). The conclusion that small countries are less prone to experience political violence than large countries may, however, be deceptive. Consider the following example. Holding other things constant, a country with 100 million inhabitants has a 2% chance of having a civil war in any given year. If we split it into five countries of equal size, the probability that at least one of them falls into a civil war goes up to 7%. Naturally, the scale of the civil war may be bloodier in the larger country – but the actual occurrence of violence is certainly lower for all the population involved.

Democratic regimes slightly increase the probability of civil war onsets (yet the coefficient is only statistically significant in columns 2 and 3; that is, in the postwar period). Per-capita income is statistically insignificant. Industrialization and land inequality are now capturing the part of the variation that other articles modeled through per-capita income and erroneously attributed to state capacity.[14]

Ethnic fractionalization and religious fractionalization are not statistically significant. The proportion of Muslims has a small positive effect on civil wars. In opposition to a substantial literature, neither economic crises nor oil induce more civil wars. Geography has a partial effect: the coefficient of mountainous terrain is positive but not significant; by contrast, noncontiguous states have a stronger chance of facing civil wars.

[14] Dropping the index of occupational diversification (alone and in the interaction) makes per-capita income statistically significant and doubles the size of its coefficient.

Table 8.3. *Predicted probability of guerrilla warfare onset over five years by size of agrarian sector and landholding inequality*

		Share of family farms over total cultivated land (percentiles)				
		10	30	50	70	90
Index of	10	0.20	0.22	0.24	0.25	0.27
occupational	30	0.22	0.20	0.18	0.16	0.15
diversification	50	0.24	0.18	0.14	0.10	0.07
	70	0.26	0.17	0.10	0.06	0.03
	90	0.28	0.15	0.08	0.03	0.01

Simulation based on Table 8.1, column 4.

Guerrilla warfare

Columns 4 through 6 in Table 8.1 examine the covariates of guerrilla warfare. Their results parallel those for civil wars. The effect of inequality and asset specificity is very similar in statistical significance and substantial size for both guerrilla and civil war. Table 8.3 simulates the probability of a guerrilla movement over a five-year period (employing the results in column 4, Table 8.1). For low levels of family farms and industrialization, the probability fluctuates around 20%. In fact, it increases with each value separately – this may be capturing the fact that societies with family farms may organize more easily. Nonetheless, as both variables increase, the probability drops: it falls below 10% at the median values of both variables and below 5% for values common in developed countries.

Since guerrilla warfare is a far more widespread phenomenon than civil wars, factors other than land inequality and asset mobility must account for the former's higher probability. Per-capita income is again not significant. Although population and democracy raise the eruption of guerrilla movements, their impact is not that different from the effect they had over the likelihood of having civil wars.

Ethnic fractionalization now becomes statistically significant. Its impact is substantial and follows a quadratic form. With all other values at their median, a highly fragmented country (with an index of 0.08, which corresponds to the tenth percentile of the universe of observations) has an annual probability of having a guerrilla movement of about 4.8%. This probability peaks at 8.8% among countries with an ethnic fractionalization of 0.5 (about the sixtieth percentile) and then declines to 5.6% for the most homogeneous country in the sample (with an

ethnic fractionalization index of 0.93). However, as countries become more industrialized and less unequal, the effect of ethnic fractionalization declines and the difference in violence between balanced countries and either homogeneous or very heterogeneous countries narrows significantly. For example, for high levels of equality and development, the probability of a guerrilla starting is 1% for homogeneous countries and only 3% for countries with an ethnic fractionalization of 0.5. Given that the impact of ethnic and religious fractionalization on violence vanishes in more equal and developed countries, it is difficult to sustain the hypothesis that ethnic diversity translates automatically into political grievances (and then violence). Although the following point should remain purely speculative, one possibility is that ethnic groups are excellent conveyors of patron–client networks in underdeveloped countries. But that once unequal economic relations and poverty decline, those networks fall in significance and violent conflict lessens as well. Besides ethnic fractionalization, the proportion of Catholics slightly increases and the percentage of Protestants depresses the presence of guerrilla movements.

Not unexpectedly geography plays also a stronger role than for civil wars. Mountainous terrain leads to more guerrilla – with all other parameters at their medians, the probability changes from 6.2% for the minimum value to 8.6% for the fiftieth percentile and to 11.3% for the maximum value. Noncontiguous states are also much more prone to violence: the probability of a guerrilla increases by 8%.

Conclusions

Combining two central strands of the literature on political violence, the literature on material grievances and motivations and recent research on the geographical and organizational opportunities that foster conflict, this chapter offers a model to account for the distribution of civil wars, guerrillas, and rebellious actions across the world. The model is successfully tested with a comprehensive dataset that covers the period after World War II.

Political violence occurs in states in which assets are immobile and unequally distributed. In relatively equal societies, peaceful, democratic means of solving conflict are advantageous to all parties and violence happens with little probability. In economies where wealth is either mobile or hard to "tax" or confiscate, sustained political violence to grab those assets does not pay off since their owners either can leave in response to the threat of confiscation or are indispensable to the optimal

exploitation of assets. These two simple parameters (inequality and specificity of assets) capture in a stylized yet robust way the set of intuitions previous scholars have employed to examine the underlying motivations that generate violence, such as the role of inequality or the idea that "lootable assets" correlate with the presence of civil wars. The examination of the existing data on civil wars and guerrilla warfare validates the model of the essay. Spells of organized or systematic political violence in the world tend to cluster in a relatively tight manner in states where both inequality is high and the economy is mainly agrarian.

Besides depicting the motives of political violence, the model incorporates the notion that "opportunities" of an organizational or geographical nature drive the costs of engaging in violence and therefore determine the likelihood with which it will occur (as well as the likelihood with which different types of violence will be employed). Again, this component emerges in the empirics of the essay. Geography matters, although in a less than systematic way. Mountainous terrain enters strongly for guerrilla movements but not for civil wars. Noncontiguous states are in turn more prone to civil wars.

The theoretical and empirical strength of the model, which naturally has to be read in probabilistic terms, has a key advantage. It allows us to think about all the variance that is left unexplained in a fruitful way. This is clear in at least two ways. First, a second look at the visual information conveyed in Figures 8.4 and 8.5 shows that although most cases of "organized" political violence occur within the upper-right corner of inequality and asset specificity, there are a few cases that do not – most of them seem to belong to the cases of "urban terrorism." Second, ethnic and religious traits still play a role, even though it is a diminished one: the positive effect on violence of Catholics and Muslims is very small; the balance of ethnic groups is only relevant for guerrilla warfare when the societies are still agrarian or not very egalitarian. Our theories for those cases are thus far wanting. Naturally, this calls for stepping up our efforts in establishing their theoretical underpinnings.

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