

**Poverty and the Organization of Political Violence:
A Review and Some Conjectures**

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Abstract

I provide an analytical review of the literature on poverty and political violence, focusing on civil war. I also consider the effects of economic inequality and education. Expectations from rational choice theories of civil war are that violence will rise as income per capita, education, and economic growth decline. This is due either to the declining opportunity cost of violence or to the decline in state capacity –two competing causal mechanisms. Theories of relative deprivation expect violence to rise as a result of higher inequality, but it is not clear how to measure relative deprivation. There is strong evidence that per capita income is robustly and negatively associated with civil war, and little evidence in support of relative deprivation theory. But there is not a very good fit between the theories and the empirical results. Inequality is hard to measure and may exert an indirect effect on the risk of civil war. Income is subject to many interpretations and we cannot easily use the statistical results on income to distinguish among causal mechanisms. In addition, preliminary evidence suggests no significant effect of income on within-country variation in civil war onset. Thus, only long-term differences across countries' income levels may explain cross-national differences in the onset of civil war. But, while income differences across countries may explain civil war, they do not explain all forms of violence, such as terrorism. I offer some conjectures that explain this puzzle: terrorism can be viewed as proto-civil war, fought by elites with more education and greater commitment to their cause than the average rebel in a civil war. To better understand civil war and the impact of poverty, we must weigh the effects of economic incentives against the effects of other explanations, such as ideology, ethnicity, coercion, or religion on different forms of violence.

Executive Summary

I provide an analytical review of the literature on poverty and political violence, focusing on civil war. I also consider the effects of economic inequality, economic growth, and education on violence. There is an emerging consensus that a low level of income is a significant or even necessary condition for some forms of political violence, such as civil war or coups. But there is no consensus on the effects of economic inequality and education. And it is not clear that the same relationship between income and civil war applies to other forms of violence, such as terrorism. I consider various theories that address the link between development and violence and critically review the available empirical evidence.

Two theories have made a significant impact on the literature: relative deprivation theories and rationalist theories that focus on the opportunity to organize a rebellion. Expectations from rationalist theories of civil war are that the risk of an outbreak of war will increase as income per capita, education, and economic growth decline. This is due either to the declining economic opportunity cost of violence or to the decline in state capacity –two competing causal mechanisms. Theories of relative deprivation expect violence to rise as a result of higher inequality. Persistent inequality leads to anger and despair, which reinforces the demand for political change.

The available empirical evidence lends support to rationalist theories of civil war, not relative deprivation theories. There is strong evidence that per capita income is robustly and negatively associated with civil war, and little evidence in support of relative deprivation theory. By contrast, economic inequality measures are not significant predictors of civil war onset.

But there is not a very good fit between the empirical results and all aspects of rationalist theory. Income is subject to differing interpretations. Some view it as an indicator of the economic cost of joining a rebellion, while others view it as an indicator of state strength. We cannot easily use the statistical results on income to distinguish among causal mechanisms. I offer some ideas on how to parse out the observable implications of each causal mechanism and test them empirically. Such a distinction between rival theoretical explanations is necessary before we can design appropriate policy interventions to reduce the prevalence of civil war. Several case studies reviewed in this chapter demonstrate measurement and other problems (e.g. unit heterogeneity) that may plague quantitative studies of civil war.

Another complication is that, while income differences across countries seem to explain variation in cross-national patterns of civil war, there is no significant within-country effect of income. This result is based on preliminary evidence I present in this chapter using a fixed effects model and may suggest that chronic poverty is more robustly associated with a higher civil war risk than transitory poverty. But we still do not have enough micro-level studies that will tell us more about the microfoundations of rebellion.

Moreover, relative deprivation may still matter. Economic inequality is hard to measure and may exert an indirect effect on the risk of civil war. Most scholars are instead looking for a direct, linear effect between inequality and civil war. Instead, the effect may be indirect, working through a higher level of political instability due to underlying economic inequality. Available measures, such as the gini index, do not capture changes in the distribution of income across groups and group-level inequality may matter more than inter-personal inequality. For secessionist wars in particular, inter-

regional inequality is theoretically more relevant than inter-personal inequality. We must consider if different forms of inequality have different effects on different types of wars – such as popular revolutions and secessionist struggles.

While income differences across countries may explain civil war onset, they do not seem to explain all forms of violence, particularly terrorism. Scholars have found that terrorists in some countries are more educated and have higher incomes than the respective cohorts in their society. I offer some conjectures that explain this puzzle: terrorism can be viewed as proto-civil war, fought by top-heavy organizations, composed of elites with more education and greater commitment to their cause than the average rebel in a civil war.

Economic incentives and opportunity are not the only explanations of political violence. Ideology, ethnicity, coercion, religion can all motivate participation in insurgency. The type of insurgency (ethnic/non-ethnic) and the form the violence will take (coup, terrorism, civil war) influence the mix of recruitment incentives. To better understand the impact of poverty on civil war, we must weigh the effects of economic incentives against the effects of other explanations, such as ideology, ethnicity, coercion, or religion on different forms of violence. And we must develop a theory that explains the dynamics of violence as violence shifts forms across time and space, often moving from coups and terrorism to civil war or genocide and back. A strategy to eliminate, or reduce, organized political violence must necessarily be complex, targeting the various forms that violence might take at different stages in the political evolution of different countries

Introduction

This paper provides an analytical review of the large literature on poverty and political violence. It offers non-specialists a perspective on the current state of the debate in that literature and presents some conjectures that might explain unanswered questions.

By “political violence” I primarily mean civil war, though I also briefly consider other forms of political violence.¹ My focus is not on poverty *per se*—understood as a particularly low level of income (e.g., \$1 per day)—but rather on the level of income across countries, groups, or individuals and the association between income and violence. Thus, “poverty” in this paper refers to low levels of economic development or income, consistent with the civil war literature, where countries with very low incomes are considered “poor” countries.²

I also consider the relationship between economic inequality and education on the one hand and political violence on the other hand, drawing upon related literatures on poverty and criminal violence to consider any parallels with studies of political violence.

There is an emerging consensus in the literature that a low level of income is a significant or even necessary condition for some forms of political violence, such as civil war or coups. But there is no consensus on the effects of economic inequality and education; and it is not clear that the same relationship between income and civil war applies to other forms of violence, such as terrorism. I look more closely at the empirical results that support this emerging consensus, drawing both on quantitative and qualitative (case study) analyses and offer some conjectures that might explain unanswered questions in the literature.

There is a lot that this paper does not do: it does not offer conclusive new empirical tests; no new theories on the effects of globalization on political violence; no extensive focus on resource wealth and its linkages to political violence; and no answers to the difficult questions about human psychology that inevitably arise when we consider why people use violence to achieve any goal. What I do show is that it is difficult to use currently available empirical results to distinguish among various competing theories of political violence. Statistical analyses of political violence are hampered by endogeneity and selection issues and measurement of key variables is also difficult. Many variables, such as economic inequality, may have an indirect effect on the risk of political violence.

The paper is organized in three sections, beyond the introduction and conclusion. Section 2 gives an overview of the theoretical literature. Section 3 summarizes available evidence on the correlation between income per capita, growth, education, and inequality and discusses the difficulty of inferring a causal relationship between these variables and political violence. Section 4 explores within-country variation in civil war onset and extrapolates from macro-level (aggregate) studies to discuss micro-level issues such as the question of individual recruitment in rebel organizations. The conclusion briefly summarizes the main lessons from each section.

Theorizing about poverty and violence

Does poverty increase the risk of violence and how? Does greater inequality increase the risk of civil war? Does more education reduce the available supply of potential rebels? I consider various theoretical perspectives in this section and provide an overview of key empirical results in the next section.

Income, Economic Growth, and Education

Largely influenced by the conflict between countries of the poor “South” and wealthy “North,” several theorists in the 1960s – 1980s argued that political violence is the result of economic modernization. Rapid growth rates and structural changes to the economy accelerate and intensify group competition for scarce resources, particularly in countries where professional specialization and ethnic cleavages overlap. Modernization increases inequality, which causes conflict and violence.³ The mechanisms through which inequality would lead to violence were not adequately explained in these theories (more on this later) and an empirical critique was leveled by Horowitz (1985), who pointed out that ethnic conflict and violence often occurs in countries with very low rates of economic modernization (e.g. Chad, Sudan).

More recently, rational choice theorists have tried to explain political violence as a rational, yet inefficient way of resolving disputes. These models resemble Becker’s (1957) economic model of crime and draw heavily on Grossman (1991, 1995) and Hirschleifer (1995), who focus on the economic tradeoffs that allow the outbreak of conflict and on the consequences of conflict on economic growth. Grossman (1995) theorized about the state’s decision on how much to tax or appropriate from its subjects, given an expectation that insurrection may result from too much taxation and resources will then have to be shifted to the protection of the state (reducing the net value of these rents to the state). Hirschleifer (1995) noted that fighting is almost always Pareto-inefficient and explained that violence is the product of “three interacting determinants: *preferences, opportunities, and perceptions*” (Hirschleifer 1995, p. 172), developing a model of conflict in which the parties’ divergent preferences and capabilities develop

opportunities for conflict. Divergent preferences reduce the size of the “agreement zone” in a bargaining situation, as do subjective perceptions of each side’s capacity to win more by fighting. There are many variants of these theories and of rent-seeking explanations of violence.⁴ The main point is that violent conflict will occur when it is expected to be more profitable than peace.

But violence – especially war— is inefficient because it is costly and reduces the net value of rents available to the state (Skaperdas 2001). This inefficiency is explained partly by divergent preferences and misperceptions and partly by the difficulty of structuring a credible agreement that avoids war. Even where a mutually agreeable solution can be found, the agreement may not be credible due to enforcement and time-inconsistency problems, giving the government and rebels incentives to continue fighting (Skaperdas 2001; Fearon 1995). A number of explanations for violent crime and political violence can be subsumed under the “credibility” argument.⁵ But Garfinkel and Skaperdas (2000) show that incomplete information and inability to credibly commit are not necessary for conflict to emerge in a long-run model if the short-run costs to fighting are less than the long-term gains of weakening potential opponents so that they cannot pose threats in the future. Moreover, in conflicts motivated by greed for material resources, it may be the case that no enforceable, credible, or time-consistent bargain can be made between the rebels and the government and the rebels may always be able to acquire more goods by using force.⁶

Two recent prominent applications of these theories are Collier and Hoeffler (2000) and Fearon and Laitin (2003).⁷ Both explain rebellion as the outcome of rational decision-making, subject to the constraints of the rebel “labor market.” Fearon and Laitin

(2003) use income not as a measure of poverty, but rather a measure of state strength. According to their model, rebel labor supply increases if the state is weak and cannot effectively police its territory.⁸ Mountainous terrain and a large population also make policing harder. Wars are more likely in new states that are “anocratic” (i.e. neither full autocracies nor democracies) and plagued by political instability, or in newly founded states. Oil dependence also adds to the risk of civil war as it corrupts political institutions.

Collier and Hoeffler share most of these hypotheses, but they give a different interpretation to income. For them, the supply of rebels increases if the economic opportunity cost of rebellion is low. Thus, higher income and educational attainment should reduce the risk of political violence by encouraging political participation and channeling conflict through institutional pathways rather than violence.⁹

If, however, the Collier and Hoeffler argument (and related empirical result) is correct, then it creates an interesting theoretical puzzle when we contrast it with the recent finding by Krueger and Maleckova (2002, 2003) that perpetrators of terrorist actions are, on average, much more highly educated than the average person in the countries they studied.¹⁰ If education increases the economic opportunity costs of violence, why would we observe this difference in the effects of education in civil war as compared to terrorism?¹¹

Conjectures on the Differences Between Terrorism and Civil War

Terrorism is neither easy to define nor to explain. Sandler (2003, 780) defines it as “the premeditated use, or threat of use, of extra-normal violence or brutality to gain a political objective through intimidation or fear of a targeted audience.” To understand

why education and income might have a different association to terrorism than civil war, we must first understand terrorism. But this is difficult, if terrorism can encompass government repression, inter-communal violence, civil war, or extra-state war. Terrorism is a strategy sometimes used by rebels in civil war (e.g. the Sri Lankan Tamils; the ANC in South Africa, the IRA in Northern Ireland), or by governments in the pursuit of their foreign policy.¹²

Despite the fluidity of the concept of terrorism, some differences between terrorism and other forms of political violence are relatively easy to discern: for example, terrorism tries to influence policy, but it never results in the direct control of territory or population.¹³ Terrorist violence is a strategy of intimidation. By contrast, civil war violence is a strategy of control and revolution. Riot violence is a strategy of intimidation and emotional release, characterized by greater spontaneity and immediate gratification. Terrorism is based on the principle of deferred gratification and requires much discipline.¹⁴ Genocidal violence is a strategy of control and annihilation. Criminal violence a strategy of extraction.

These differences might help explain the apparent disagreement between Collier and Hoeffler on the one hand and Krueger and Maleckova on the other hand with respect to the association of income/education and civil war. One plausible explanation is that terrorism as an incomplete or “proto” civil war. Both civil war and terrorism are forms of insurgency, though they differ with respect to a number of dimensions (damage done to the state; civilians killed; power asymmetry between the parties; targets and purpose of violence; type of actors). Terrorists would like to have a civil war, but for various reasons they cannot, so they are in effect the front guard of an insurgency (early

nationalists, revolutionary leaders). Thus, terrorist organizations are top-heavy; they are elite-based organizations. Terrorist groups with an ethno-religious affiliation are like early nationalist or liberation movements. Nationalist leaders are typically well educated – it is through education that most have cultivated their nationalist beliefs. By virtue of their small size, terrorist groups have a higher proportion of leaders to followers as compared to rebel groups. Leaders are typically more educated than followers – they must take more risks, have a higher capacity to fulfill their missions, and be able to motivate others to fight. Thus, on average, the education level of terrorists may be higher than that of rebels.¹⁵ If conditions of extreme poverty and political repression prevail, then terrorists could find supporters for a large-scale insurgency. But without mass-level support, terrorism cannot grow into civil war. This is consistent with Martha Crenshaw's (1981, 384) description of terrorism as “essentially the result of elite disaffection; ... the strategy of a minority, who may act on behalf of a wider popular constituency who have not been consulted about, and do not necessarily approve of, the terrorists' aims or methods.... Terrorism is most likely to occur precisely when mass passivity and elite dissatisfaction coincide.... [it] is the resort of an elite when conditions are not revolutionary.”

Terrorism will be constrained when there is considerable government legitimacy or when economic opportunity costs of violence are too high, or both. Terrorist groups that are proto-civil wars may not be able to mount a large rebellion as a result of external constraints: financial constraints that do not allow the group to acquire more weapons and hire new recruits; military constraints, if the state is strong enough to deter mass-level participation in the insurgency; or political constraints, if the state is legitimate enough to

make it hard for the terrorists to gain public support. These constraints suggest that only highly committed individuals would join a terrorist organization, particularly when terrorism does not take place in the context of a civil war.

At the same time, from the perspective of an educated and rational individual, participation in a terrorist movement should be motivated by a positive expectation of success of the movement. The terrorist should believe that violence will work.¹⁶ Thus, the evidence that Krueger and Maleckova (2003) present that the majority of the Palestinian population believe that terrorism has helped achieve Palestinian rights is a critical piece of information. Here, also, we may find another explanation for why terrorism tends to occur in democracies more than civil war does. Democracies are more prone to shape their policy in response to public opinion than are autocracies. Thus, terrorism, which targets government policy by terrorizing the public, may have a better chance at succeeding in democratic states rather than autocracies.¹⁷

In an autocracy, this logic does not apply. Educated individuals will join if they are convinced that terrorist tactics will weaken the autocracy's capacity – so the terrorist organization may have trouble recruiting members before it becomes sufficiently strong to challenge the state. External assistance may be able to assist the terrorists in the early phases. In an autocracy, the terrorist group will have to offer more material rewards or more immediate proof of effectiveness to attract members. In a democracy with high resolve (deriving from the government's public legitimacy), the terrorist group may again have to offer more material rewards to attract members.

Terrorism in a strong autocracy or a strong and popular democracy, where there is little evidence of the effectiveness of violence will be the act of small groups, interested

in making symbolic statements, or taking selective revenge, venting their frustration, or punishing their regime. In between these two versions – of terrorism as revenge and terrorism as proto-civil war—there is a third version in which terrorists have a narrow policy scope, intending to influence the government in discrete ways. The more selective are the goals of the terrorist organization, the more private the incentives for joining. Here, again, the deferred gratification that terrorism offers and the greater discipline that it requires might imply that terrorists will have a different socio-economic makeup than the rest of the population. This can be confirmed only with more micro-level studies.

At the macro level, the implication of the above discussion is that in poor countries, if there is a basis for terrorist action, we are more likely to see it develop into an insurgency than in richer countries. Moreover, unlike civil war, terrorism should be responsive to improvements in the degree of political openness even without parallel improvements in economic development (though the two often go together).

Related to this discussion of terrorism are theoretical perspectives that emphasize the ecology or technology of violence. Several authors have argued that urbanization increases instability (e.g. Hibbs 1973; Huntington 1968). Hobsbawm (1973) writes that cities became the focal point of terrorism starting with barricades erected in protests after the urban renewal projects and boulevards built in Paris in the late 19th century). Urbanization provides easily accessible large groups of potential victims for terrorist action –i.e. for insurgents with few weapons and limited reach (Crenshaw 1981, 382). Early practitioner/theorists of the guerilla warfare emphasized the relationship between urbanization and terrorism and saw terrorism as urban guerilla warfare, intended to support a revolution that must be won in the countryside (Marighela 1971; Guillen 1973).

(Kocher 2004) presents some statistical evidence that show that urbanization decreases the feasibility of insurgency, but he theorizes that it can push potential rebels to adopt different tactics, such as terrorism. Thus, economic development and urbanization need not be associated with an eradication of political violence, but rather with a shift in violent tactics used by rebels.

Inequality

Another strand of theorizing focuses more closely on inequality –both actual and perceived. Marxist theory emphasizes the impact of economic inequality, as the industrial working class is expected to rebel because they have “nothing to lose but their chains.” Persistent inequality leads to growing degradation and despair, which reinforces the demand for political change. In variants of that theory, poverty *per se* does not cause conflict, but group inequality does, as it increases grievances.¹⁸ The highest risk of violent conflict occurs in societies where there is an overlap between poverty (i.e. class cleavages) and ethno-religious cleavages – i.e. in countries with so-called ranked social systems.¹⁹

Prominent among theories that emphasize the role of inequality are the so-called “relative deprivation” theories. Ted Robert Gurr (1970) wrote that people rebel when they realize that there is a large discrepancy between their legitimate expectations of material rewards and their actual rewards. However, he was not able to provide significant empirical support for his propositions. An early proponent of relative deprivation theory, Davies (1962) argues that revolution will occur when there is a sharp reversal of economic well being, particularly when steady improvements are suddenly overturned. Related to this perspective is Alexis De Tocqueville’s (1857) theory that

revolution occurs when things get better after having been bad for a long period: “The regime which is destroyed by a revolution is almost always an improvement on its immediate predecessor.”²⁰ Tocqueville echoes more recent views and empirical findings that political instability – including democratization—increases the risk of civil war.²¹

These theories derive from a larger literature on the sociology of crime and violence. Relative economic deprivation has been seen by many as an explanation of homicides and other violent crime (e.g. Merton 1957; Braithwaite 1979) and is often compounded by social inequity and racial discrimination (e.g. Blau and Blau 1982). A premise of relative deprivation theory is that individuals make rational comparisons between their individual situation and that of others with higher incomes and are upset by the large differential. That premise is often not supported by the data, as I will discuss in the next section. Another problem with the application of relative deprivation theories to explain civil war onset is that they do not present systematic evidence to demonstrate that inequality or structural change are necessary and sufficient conditions for violence. This is what the third strand of theorizing attempts to do by focusing on the opportunity for rebellion.

Relative deprivation theories have not been verified by the data. In virtually all cross-country regressions of civil war, economic inequality, measured by the Gini index, is not significant. I offer some conjectures in the next section that might explain this result. Two ideas of theoretical interest can be mentioned here. First, all models of civil war that I have seen look for direct effects of inequality by adding the Gini index to the right-hand-side of a regression equation. But inequality may affect the risk of civil war indirectly by increasing the risk of political instability or regime transition, which several

theories expect to increase the risk of a civil war. I offer some preliminary results in the next section to highlight this hypothesis.

Second, another plausible theoretical explanation of the non-significance of inequality in civil war models is that people might not be fully rational when they assess their social status, or that they might believe that no political or violent action can improve their status. Some authors have argued that, since individuals typically compare themselves to other members of their group, within-group measures of inequality should be better predictors of violence due to relative deprivation than either across-group inequality measures or absolute poverty measures.²² However, inter-personal violence is usually directed not at those who are the objective source of frustration in relative deprivation theories, but rather at those who are physically close to the frustrated individuals (co-workers, spouse, and neighborhood members).²³ Several other psychological impediments might explain why the poor do not rebel (apart from the usual collective action problems, which have been discussed by several studies). These impediments might include a difficulty to envisage that action will change their position; inability to objectively assess their relative status; tendency to compare one's status only to others in the same social class and not across classes; backward-looking framing effects that do not allow people to think creatively about the future.²⁴ Through so-called "empathy gulfs" and "framing effects" social psychologists can explain why there is not much more crime, hostility, and demand for downward redistribution in deeply unequal societies (see Shapiro 2002). If these insights are correct, they reveal serious problems for the application of relative deprivation theories to explain civil war.

With this review of the theory in place, we can now turn to the evidence. Briefly, the expectations from the theory are the following: rational choice theories expect that violence will rise as income per capita, education, and economic growth decline. This is due either to the declining opportunity cost of violence or to the decline in state capacity. Relative deprivation theory would expect violence to rise as a result of higher inequality, but it is not clear how to measure relative deprivation.

Empirical results

Civil wars occur disproportionately in poor countries and retard economic development in entire regions. The mean per capita GDP in countries affected by civil war at any point from 1960-1999 is less than half that of countries with no civil war experience and countries with no war experience grow much faster than war-affected countries.²⁵ Civil war countries also happen to be less democratic than peaceful countries: the average democracy score for war-affected countries is 65% lower than that for no-war countries.²⁶ But democracy does not have a statistically significant effect on civil war onset once we control for income. The analysis becomes complicated by the fact that democracy and development may be causally related. While democracy emerges in many different ways, there is evidence that it is sustained in countries with high per capita income (democracies have not failed when per capita GDP was greater than \$6,000, according to Przeworski et al 2000). The combined effect of a high level of economic development and political openness is to reduce the risk of civil war – though this need not apply to all forms of political violence, as I will argue below.²⁷

Among the various theories considered in the previous section, rational choice theories seem to be the ones more supported by the data while relative deprivation theories are not. To make the discussion that follows more concrete, I present in Table 1 results from a statistical model of civil war that is consistent with the models used in important studies in the literature (Collier and Hoeffler 2000; Fearon and Laitin 2003).

The dependent variable is civil war onset, a binary variable. All years of no-war are coded “0.” There are two ways to code war starts: in Collier and Hoeffler’s study (version a), war starts are coded “1” and observations of ongoing war are dropped until the war ends. Thus, if another civil war starts in the same country while another war is ongoing, we would lose that information. In Fearon and Laitin’s study (version b), war start is coded “1” whenever a war starts, even if another war is ongoing. Country-years with no new war starts are coded “0” regardless of whether or not another war is ongoing. This adds many more war starts to the analysis.

The model that I use “synthesizes” these rational choice studies, but it can obviously be modified in important ways and I do not consider any specification or robustness tests here. Briefly, civil war onset is expected to be less likely, the higher the level of per capita income (*gdpl1*). Anocracies (*anoc211*), states at the mid-range in the Polity IV series, should have higher risk of war as they are neither as effective as autocracies in repression nor as good as democracies in peaceful conflict resolution (Fearon and Laitin 2003; Hegre et al 2001). States with political instability (*inst311*) and regime transition should be at higher risk of war onset.²⁸ Ethnic heterogeneity (*efl1*) should increase the risk of war onset by pitting groups with different preferences against each other.²⁹ Competing theories expect a different relationship between this variable

and civil war onset and empirical results on the link between ethnicity and civil war are mixed. I control for population, (measured by the natural log of population, *lpopns11*), which has been shown to be significant and positively correlated with war onset.³⁰ I control for economic growth, measured as annual percent change in the level of real per capita income (*groll*), as Collier and Hoeffler (2000) find this to be significantly and negatively correlated with war onset. I control for countries that are significant oil exporters (*oil211*). Such countries are thought to be at higher risk of war for a number of reasons – the most commonly encountered hypothesis is that oil corrupts political institutions or that it generates incentives for secessionist war. I control for countries' mountainous terrain (*mtn11*), following Fearon and Laitin (2003) who view terrain as part of the technology of insurgency (mountains provide hideouts for rebels). I also control for a variable measuring time at peace since the last war (*pwt*) in regressions using version (a) of war onset and a variable measuring if there was an ongoing civil war in the previous period (*war711*; *warns11*) in all other regressions. All right-hand-side variables are lagged once. I use a pooled logit, which is the estimator used in all the key studies. Tables A1 and A2 in the appendix give definitions, sources, and summary statistics for all variables.

There is substantial disagreement among civil war studies on when civil wars start or end, so I use here 2 ways to code them: one corresponding to the Fearon and Laitin list and one corresponding to my list of civil wars (I leave out Collier and Hoeffler's list because it is only available after 1960, while the other two extend back to 1945). I report regression results using both versions of the civil war variable.

[Insert Table 1 about here]

The most significant and robust variables are income per capita and population size.³¹ Anocracy and instability are also significant, with the hypothesized coefficient signs, but they may be partly endogenous to civil war.³² GDP growth is non-significant, except in regressions 4 and 8, where I have included the first observations from each country series by assigning it the same value as the second observation.³³ This allows us to include another 10 or so civil war starts in the analysis. In regressions 3 and 7, I drop growth as this variable is particularly sensitive to civil war and at least one study of African conflicts (Miguel et al 2004) has shown that the exogeneity assumption for growth is not satisfied. Dropping growth does not change the results on the other variables. Ethnic fractionalization is generally non-significant, though in some versions of the model using Sambanis's (2004b) data, it is significant and positive. Oil dependence increases the risk of civil war only in Sambanis's data.³⁴ War in the previous period is non-significant using Sambanis's data, but it is significant and negative using Fearon and Laitin's data.

GDP per capita

In Table 1 and in all published studies on the outbreak of civil war, one of the most robust variables is GDP per capita. Rich, industrialized countries are virtually free of civil war risk. Middle-income countries have low and declining risks (Collier et al 2003). This result is robust to different sets of countries and time periods as well as 12 different measures of civil war onset (Sambanis 2004b), but there is less robust evidence in within-country regressions (more on this later). GDP per capita has been shown to have a strong negative association with other forms of violence, such as coups and

genocide.³⁵ Londregan and Poole (1990), find that the poorest countries in their sample are 21 times more likely to have a coup than the wealthiest countries.³⁶

The finding that income per capita increases the risk of political violence is grounded on an extensive empirical literature from the 1950s-80s, showing an association between homicide and poverty.³⁷ But that research is highly varied and complex and shows that the association between poverty and violence is not straightforward. Some researchers have found that poverty was associated with homicides occurring between people who know each other, whereas it is unrelated to other types of homicide.³⁸

Krueger and Maleckova (2003) review the literature on hate crimes and find no evidence of a poverty effect (though they find an association between poverty and property crime). In a study of 39 countries from 1965-95, Fanzylber, Lederman and Loayza (2001) find a statistically significant causal relationship between inequality and violent crime both within and across countries, even when they control for the likely endogeneity of income inequality to some of the factors that also cause crime. A micro-study of rural Tanzania finds that changes in poverty (income shocks) are statistically associated with some murders – specifically, murders of elder women who are considered to be financial burdens on the household.³⁹ Poverty has also been shown to be associated with domestic violence: being poor and living in an impoverished neighborhood further increases the risk of partner violence, though that risk is tempered by social and cultural characteristics of the individual.⁴⁰ An interesting finding of multilevel analyses of domestic violence is that socio-environmental factors (i.e. what we would call macro-level variables in civil war research) influence violence levels but are filtered through community and individual characteristics.

These studies show that violence that grows out of poverty is likely instrumental – i.e. violence is used when tangible economic goals can be achieved through it. The question of relevance for the civil war literature, therefore, is to measure the effects of poverty while controlling for determinants of the opportunity for violence (state capacity, military technology, balance of power among the parties, etc).

Growth of per capita GDP

There is less clear evidence on the association between economic growth and civil war onset. Some (e.g. Collier and Hoeffler 2000) find a negative and significant association, but Fearon and Laitin (2003) do not find any support for economic growth. Sambanis (2004b) finds that economic growth is not robust in civil war models and its coefficient changes sign in about half the models suggesting that growth may be endogenous to the onset of violent conflict. Indeed, Murdoch and Sandler (2003) find that civil war retards economic growth not only in the civil war country, but also in the broader region. Controlling for this endogeneity, Miguel et al. (2004) present evidence that economic shocks and slower growth does increase the risk of civil conflict, particularly lower-level violence, using instrumental variables estimation.⁴¹ Moving from civil war onset to war recurrence, a recent study of the determinants of postwar peace duration identified a very strong positive effect that economic growth plays in maintaining that stability of peace processes, particularly in the long run.⁴² During the first few years of a postwar peace transition, direct intervention by impartial external actors –especially the United Nations through the deployment of multidimensional peace operations—can effectively keep the peace. However, in the long run, the peace must be

self-sustaining. A high rate of economic growth is critical for successful long-term postwar peacebuilding (Doyle and Sambanis 2004).

There is no clear evidence linking economic growth to genocide or politicide, but there is a strong association with coups, found by Londregan and Poole (1990), using models that address the potential endogeneity of growth. There is also no strong evidence linking slow growth to more terrorism or political assassinations or riots.⁴³

It is difficult to translate these results into policy prescriptions as we do not yet understand the mechanism through which economic growth might increase the risk of violence. For example, if negative economic growth acts by increasing public grievances or by disproportionately affecting certain ethnic groups, then an economic policy that targets higher growth should be used to reduce the risk of violence. But, there can be other channels as well. In some countries, ruling elites that were sustained by corruption, cronyism, and offering side-payments to key constituencies may not be able to afford these side payments in a declining economy and this can shake the foundations of social order.⁴⁴ Elites may then use repression to arrest growing opposition and repression can lead to conflict escalation.⁴⁵ This is a different mechanism from Collier and Hoeffler's opportunity cost mechanism and it requires different policy interventions – policies that target elites will be more cost-effective in this case.

Inequality

The econometric evidence on the impact of inequality on political violence is mixed at best. Very few authors find a statistically significant association between inequality, measured by the Gini coefficient, and political violence.⁴⁶ Most authors do not find such an association.⁴⁷

Several case studies seem to suggest that the lack of a statistically significant association is not an artifact of poor data quality.⁴⁸ Indonesia, for example, is a country with several incidents of violent conflict, but it has a relatively low Gini coefficient. This result need not surprise us as inter-personal inequality need not be related to secessionist violence of the sort we have observed in Indonesia. One might expect to find a relationship between inequality and popular revolutions or class conflict. Ethnic or secessionist wars may be fed instead by group-based inequality. In many countries, rebellion has been averted for years through a system of redistribution to poorer regions.

One possible explanation for the non-significance of inequality in civil war cross-country regressions is that most authors are using the wrong measure of inequality.

First, the Gini index does not measure changes in the distribution of income across groups. Much of the recent work on the effects of globalization concentrates on precisely such dynamic effects on the distribution of income and we do not have any systematic studies analyzing such effects. Yet, hypotheses about the potentially negative effects of globalization are centered on the group-specific or region-specific effects of trade openness and loss of policy sovereignty. It is precisely such changes in income distribution across groups or regions that might lead to political violence.

Second, there is considerable evidence of sub-national variation in crime and violence that is unrelated to the national level of inequality. Important regional patterns of violent crime persist in some countries (e.g. in the US, the South has relatively more homicides and fewer suicides), even when poverty and inequality are controlled for,⁴⁹ but a different unit of analysis (inequality within regions) might be better suited to better explore the causes of violence at the sub-national level.

Third, it may also be the case that asset (e.g. land) inequality matters more than income inequality (although Collier and Hoeffler find no such evidence). In several countries, disputes over land rights are at the core of ethnic violence.⁵⁰ In Kenya, the Kikuyu benefited from colonial policies increasing land rights and were the main beneficiaries of educational improvements and business credit programs after independence. Kimenyi and Ndung'u (2002) explain that this caused a negative reaction against the Kikuyu, leading to their expulsion from Masai-land after independence. In Senegal, land rights disputes were also a key factor in the Casamance civil war; the conflict started with large-scale expropriation of indigenous land in 1979 (Humphreys and Mohamed 2002). Similarly, it is hard to find any account of the civil war in El Salvador that does not emphasize the highly unequal distribution of wealth and land (see, e.g., Johnstone 1995).

Fourth, the problem may lie with the aggregation of different types of civil war. While inter-personal economic inequality as measured by the Gini coefficient might be a relevant indicator to measure the average person's proneness to join a class-based revolution against a government with failed redistributive policies, a more appropriate measure of inequality to analyze the onset of secessionist civil war may be inter-regional inequality (i.e. differences in average incomes across regions). Some regions are marginalized and poor because the state has historically not attempted to develop them and bring them closer to the center (e.g. Chiapas in Mexico, Azawad in Mali), or because of a history of resistance to integration (e.g. Chechnya in Russia). Other regions are unequal partners in a federation that uses them as net fiscal contributors to subsidize the membership of poorer states (e.g. Slovenia in Yugoslavia; Baltic Republics in the USSR).

Case study evidence offers several examples of violence driven by such inter-regional inequality. In Senegal, inequality across regions can explain *where* the war actually broke out (Humphreys and Mohamed 2002). Economic inequality was reinforced by political and geographical distance from the center. In Lebanon, Makdisi and Sadaka (2002, 21) tell a similar story, as regional inequalities in patterns of economic development were critical in explaining where and why the violence broke out.

Regional inequality is inevitably neglected in the CH model and other studies that focus on the country-year as the unit of analysis. To develop better predictions of where a separatist war is likely to occur, our unit of analysis must be the region (in wars over self-determination the insurgents' aims virtually always have as referent a pre-defined region, such as a province, state, or republic in a federal system). In non-federal systems, the territorial boundaries of second-largest administrative units can be used as units of analysis or the entire country can be considered a single region.⁵¹

Finally, most studies seem to have ignored the possibility that economic inequality may increase the risk of civil war indirectly, by increasing the risk of political instability or regime transition. An exception is Alesina and Perotti (1996) who, in a cross sectional study of 71 developing countries from 1960-85, argued that inequality fuels social discontent and increases political and social instability, including coups, revolutions, mass killings. Here, however, there is not a firm distinction between regime instability and political violence as Alesina and Perotti's instability measure includes violence.⁵² A quick check with the data used in civil war models offers some support to the conjecture that inequality may influence civil war risk through its effects on instability. I coded instability as a change of 3 or more points on the Polity scale, which

measures a country's democratic minus its autocratic characteristics.⁵³ I then regressed two measures of income inequality (both are gini indices, one using data from the World Health Organization and the other for the World Bank and both are available for only one year per country) on the binary instability variable (columns 1 & 2) and a measure of democracy (columns 3 & 4) and found the gini index highly significant and positive (see Table 2). Of course, we cannot exclude the possibility of reverse causation, given that the gini is measured only once for the entire period and may be affected by prior levels of instability and the type of regime.⁵⁴

[Insert table 2 here]

Education

Collier and Hoeffler's hypotheses about a negative association between educational attainment and civil war have not been replicated by other researchers, so there is not a wealth of quantitative results on education to discuss. To sort out how poverty, inequality, and education influence different forms of political violence, we need to pay closer attention to the mechanisms linking these variables. I turn next to a more explicit discussion of mechanisms and revisit the question of educational attainment among insurgents in a later section that addresses the differences between terrorism and civil war.

*Mechanisms Linking Poverty to Violence*⁵⁵

To sort out theories and design effective policies, we must understand the mechanisms or causal pathways through which poverty and the other variables of interest lead to violence. The quantitative analyses that I have reviewed do not help us

distinguish among competing theories. I demonstrate this by focusing on the two principle interpretations of GDP in civil war models: GDP measures both economic opportunity costs and state weakness, but these constitute two different explanations of civil war. I draw on the results of a comparative case study project that included 21 countries and more than 30 civil wars.⁵⁶ The project systematically applied the Collier-Hoeffler opportunity cost model to each case and case study authors answered a set of questions that were designed to evaluate if the mechanisms underlying the Collier-Hoeffler empirical results were those identified by the theory; and if the measures used in the statistical tests of the model captured the theoretically relevant variables.⁵⁷

Economic Variables: GDP, Growth, Education

The key measures of the opportunity cost argument developed in the Collier-Hoeffler model are GDP per capita, secondary education, and economic growth. High values of these variables should reduce the probability of civil war. Consistent with this prediction, many countries in the case study project had low and declining per capita income in the years preceding the start of their civil wars; they had low education levels and declining growth. In Sierra Leone, real per capita income was just over \$900 before the war started, down from \$1,400 in the 1970s (Davies and Fofana 2002). In Indonesia, the East Asian financial crisis caused income to fall by 9.8% in the province of Aceh in 1998, right before a war started there (Ross 2002). The oil and gas sector, which accounted for 65% of Aceh's GDP (Ross 2002, 27) contracted by almost a fourth during the financial crisis. In Mozambique, a rapid deterioration of economic conditions started with independence and contributed to the civil war (Weinstein and Francisco 2002). In Yugoslavia, incomes dropped after the liberal reforms of 1989, just two years before the

first of several wars in former Yugoslavia. These patterns offer broad support to the Collier-Hoeffler model's opportunity cost argument.

If the opportunity cost argument is correct, then the risk of civil war should increase as income falls. This argument is consistent with evidence that the risk of war recurrence is far greater immediately after the end of a war than several periods later.⁵⁸ We can identify declining income as the mechanism through which time at war increases the risk of new wars in the future. If we interpreted GDP per capita as a measure of state strength, we would reach a similar conclusion, as declining GDP would imply declining strength, which would increase the risk of a new war. This suggests a specification change for the Collier-Hoeffler model: adding an interaction term between GDP and ongoing war to a model of civil war onset would be able to measure such an effect. Of course, the effect of ongoing civil war on the risk of a new war breaking out in the country is neglected in the Collier-Hoeffler model, as the authors drop ongoing periods of war, ignoring the feedback effects mentioned above. But, if we instead coded the dependent variable (war onset) as "0" for all years of ongoing war (this is the Fearon and Laitin 2003 method), we could add such an interaction term to control for the potentially differential effects of some variables during periods of war as compared to periods of peace.

It is unclear how to interpret the negative correlation between GDP per capita and civil war. It could support the "weak state" hypothesis or the "opportunity cost" hypothesis.⁵⁹ More direct measures of opportunity cost, such as unemployment, especially among young men, might help distinguish between the two hypotheses. Unemployment levels would have been a more direct measure of potential rebel supply.

In Mali and Senegal, local unemployment was greater in Azawad and Casamance –the two regions where the insurgency took place (Humphreys and Mohamed 2002). In Nigeria, recession in the late 1970s caused unemployment to double to more than 20% before the onset of the Maitatsine rebellion (Zinn 2003). In pre-war Yugoslavia, while income per capita was two or three times the average for civil war countries in the Collier-Hoeffler model (thereby reducing the estimation of relative risk in Yugoslavia), unemployment had in fact surged and, in some regions reached 40% of the adult population. More examples such as these can easily be found and it seems straightforward that unemployment rates (especially region-specific unemployment) would be a more refined measure of the theoretical argument of opportunity cost in the Collier-Hoeffler model.

Turning to the interpretation of GDP as a measure of state strength, we find evidence of this relationship in some of our cases. The state strength argument is well illustrated by Woodwell's (2002, 16-17) study of the war in Northern Ireland. He describes a protracted, low-intensity insurgency that remained low-intensity precisely because it was taking place in a highly developed country. The "Troubles" and their aftermath in Northern Ireland was the worst political violence in Western Europe, causing around 3,300 deaths and dozens of thousands of injured.⁶⁰ According to Woodwell, part of the reason that the conflict did not escalate into a larger war had to do with the strength of the British state, which forced the insurgents from the "Troubles" of 1969 until 1994 into a strategy of low-level urban violence and terrorism.⁶¹ A larger insurgency would have triggered a massive response from the British government.

What this explanation probably leaves out is the role of civil society and public opinion in the U.K. and neighboring Ireland. A more intense war campaign by the IRA and a more decisive response from the British army is likely to have caused negative reactions from civil society institutions and the public. In an established democracy like Britain, war-fighting tactics like the ones that Russia has used in fighting the Chechen rebels (i.e. bombing Chechnya's capital, Grozny) are not viable – indeed they are unthinkable.⁶² In other words, the state strength argument might be conflated with the liberal-democratic characteristics of the British state. An example that helps disentangle the complicated relationship between GDP and state strength is Kenya, a case of a weak economy and a strong state – albeit an authoritarian one.

The absence of war in Kenya has also been explained as deriving from the state's strength. Despite strong ethnic antagonism, significant electoral violence, and a coup attempt in August 1982, no large-scale civil war has occurred in Kenya due mainly to the state's strength and authoritarianism.⁶³ However, in this case GDP per capita is low. State strength was a function of Kenya's authoritarianism. The state has exercised control over Kenyan territory (Kimenyi and Ndung'u 2002, 12) and the mechanism has always been corruption. The government has used local police forces to violently repress those local opposition groups that could not be bought off and rewarded government supporters with gifts of public land. Thus, use of GDP per capita to measure state strength is not effective in the case of Kenya and several other countries. This is consistent with early "state strength" theorists such as D.E.H. Russell (1974), who operationalized state strength in terms of political/civilian control of military elites:

according to Russell, part of the military must defect for rebellions to lead to an overthrow of the state.

Turning to the education variables, data on schooling seems to broadly support the Collier-Hoeffler argument in many countries, particularly those in Africa. Secondary schooling rates were very low and declining in Mozambique before the war; and there were virtually no educated Congolese before the start of the 1960 war. But there may be a regional effect at play here, since other countries, such as Yugoslavia, Georgia, Russia, and Cyprus, all had very high levels of schooling and the schooling variable does not behave according to the Collier-Hoeffler model's logic. Lebanon, which had a long and bloody civil war, also had among the highest levels of education in the Arab world with a 60% adult literacy rate (compare with 15% for Iraq) in 1950s-60s and a school enrollment ratio of 76% in the 1950s (Makdisi and Sadaka 2002). Saudi Arabia, by contrast, had a schooling rate of 4%, but no war.⁶⁴ In most post-Soviet states where we saw civil wars, education levels were high; typically more than 90% of the population had a secondary education.

Again, what is truly missing here is an explanation of *how* schooling influences civil war risk. The Collier-Hoeffler interpretation would apply if schooling actually increased employment opportunities, but is this the case? We need data on unemployment by education level to see if the premise of the theory is correct. The Caucasian or Lebanese cases as well as Yugoslavia, Cyprus, Greece, all are counter-examples in which civil war took place in countries with high education levels. What we do not have is a close-up look at what is being taught in schools. In many countries (or regions in federal states), the curriculum is the primary mechanism of inculcating

children with nationalist ideology, which later feeds into support for violence. It is not surprising that this mechanism is entirely absent from Collier-Hoeffler's thinking about schooling, since nationalism plays no role in explaining when and where or how a rebellion might take place. But a detailed theoretical and historical argument (Darden 2002) has been developed that demonstrates a close correlation between nationalist education in schools and persistence of nationalist ideology. That argument might go a long way to explain cases such as Lebanon, where education was intensely sectarian and in fact fed the war by fueling the nationalist and sectarian ideologies of the various groups in the war.

Turning now to economic growth, several cases seem to be perfect examples of the Collier-Hoeffler argument regarding the negative effects of declining growth. Economic growth had negative rates of growth in the five years before a war started in Senegal, Mali, Bosnia, Azerbaijan, Sierra Leone and other countries in our sample.

However, economic growth seems to have a complicated relationship to civil war. While Collier and Hoeffler model a linear relationship between lower growth and more civil war, there are undeniable dynamic effects. First, something that all quantitative studies miss entirely is that low-level violence that typically precedes war reduces the level and rate of growth of income, as it hampers economic activity by reducing investment and encouraging capital flight. Second, civil wars have further negative effects on income and economic growth and may increase the risk of future war outbreaks, something that is not properly modeled by Collier and Hoeffler. Third, in some cases, rapid growth may actually cause civil wars. In Lebanon, growth averaged 7.5% for 1950s, 6-6.6% for 1960s; and 7% for 1970-74 (Makdisi and Sadaka 2002). In

Indonesia, Ross (2002, 18-19) writes that rapid growth indirectly reinvigorated the GAM – the Acehese rebel movement—because it led to the expansion of the extractive resource industries in the region and an increase in the number of migrants and led to land seizures in Aceh. Thus, while it was not growth *per se* that increased the risk of war onset, we should expect a positive correlation between these variables in the case of Aceh due to the government policies that were implemented in high-growth periods. One of these policies was to increase migration into Aceh and enact measures that benefited migrants at the expense of the autochthonous population. This was a mechanism that increased the potential for violence in Aceh, and it serves as an example of the limitations of Fearon and Laitin’s (2003) “sons of the soil” argument. That argument focuses on the migration as the mechanism of violent conflict between the autochthonous population and a migrant group, but we see from the Ross (2002) and other studies that it is in fact a deliberate government policy or repression that acts as the deciding mechanism for violence – it is not migration *per se* any more than it is high economic growth.

The above examples illustrate that standard models of civil war do not model the endogeneity of economic growth to civil war. Civil wars can reduce both income levels and economic growth. Civil war in Caucasian states, for example, caused massive drops in income.⁶⁵ Georgia’s GDP per capita dropped from approximately \$3,670 in 1991 to somewhere between \$777 and \$913 in 1997. In Azerbaijan, where the conflict that ultimately led to civil war started in 1988, GDP per capita fell from around \$4,400 in 1985 to around \$400 in 1996, a little over a year after the end of the civil war, and \$510 in 1999 (See Zurcher , Koehler, and Baev 2002). In the DRC, one of the most war-ravaged countries with up to five distinct episodes of large-scale civil war, income per

capita in the late 1990s is approximately half its value at the time of independence in 1960 (an average of \$222 for the years 1995-1999 down from \$548 for the period from 1965-69).⁶⁶ In Burundi, another country with recurrent civil wars and episodes of ethnic cleansing, GDP per capita has fallen by half due to the war in the 1990s (from \$211 in 1991 to \$110 in 1999).⁶⁷ If at least some of these declines were due to civil war, then we have a feedback effect that is not properly modeled in most models of civil war.

These examples illustrate that there are conflicting interpretations of the statistical findings on the correlates of civil war partly due to the lack of a close fit between the empirical proxy and the theoretically significant variable. The task for quantitative researchers now is to find better proxies or to use indirect ways to distinguish among various competing theoretical interpretations of their findings.

How might this be done? We can start by trying to find a better proxy to retest the relationship between poverty and civil war. Income per capita is simply subject to too many interpretations. We might try to match different views of insurgency with different proxies or combinations of proxies. One view of insurgency is that it is a professional choice. In such models, GDP measures the economic opportunity cost of violence. A second view is of insurgency as crime. Here, GDP can measure not only the opportunity cost of violence, but also the state's capacity to police its citizens. A third view is of rebellion as social justice (Gurr 1970, Stewart 1998). In such models, the effects of income must be considered interactively with measures of political rights (see Hegre 2003) and/or inequality. A fourth view is of rebellion as frustration. GDP is not a good indicator of frustration; a more targeted measure could be, for example, the rate of unemployed among certain social or ethnic groups. A fifth view is of rebellion as

resistance. GDP is not necessarily relevant to explain demand for insurgency here (Sambanis 2001), but it can be used to measure the supply of insurgency (state weakness). A sixth view is of rebellion as imposition of ideology (common in Marxist writings) and a means of state-building (Tilly 2003). GDP is again not necessarily relevant as a measure of the demand for rebellion here, but it can again be used as a measure of supply, if it reflects state capacity.

To sort out these perspectives on rebellion, we can try using interaction terms to check the plausibility of different channels. For example, we could interact GDP and democracy⁶⁸ or we would interact a measure of state corruption with income per capita. Or, we could empirically test the observable implications of each theoretical perspective. For example, if income per capita measures state capacity, then there should not be any statistically significant difference in the mean incomes of countries with ethnic and non-ethnic wars (state capacity should affect equally all types of civil war). But, if income measures labor supply and the opportunity cost argument, as Collier and Hoeffler (2001) have argued, then income levels should be less significant as determinants of ethnic war, since ethnic affinity and allegiance should substitute for wages in an individual's decision to join a rebellion (Sambanis 2001). Thus, among civil war countries, we would expect to see higher (or, at least, not lower) per capita income in countries with ethnic as compared to non-ethnic wars. There is clear evidence of this in the data. A two-sample means test of income per capita sorted by the type of civil war reveals a statistically significant difference with much higher per capita income in ethnic wars. This holds in both cross-sectional and panel-data using two different time periods and three different ways of coding the ethnic war category.⁶⁹

Another approach could consist of using more direct measures of the various mechanisms: For example, we could measure economic frustration by the unemployment level among highly educated men (cf. Krueger and Maleckova 2003). We could measure the prevalence of ideologies of nationalism by carefully coded variables on the timing of countries' scholastic revolution and by analyzing the differences between the returns to schooling in countries with high levels of armed conflict (short of war) as compared to countries no armed conflict.⁷⁰

This line of inquiry can ultimately help disentangle the strong state from the opportunity cost mechanisms.

Dynamics and Within-Country Effects

Many countries seem to be caught in a spiral of violence. Civil war is only a part of a cycle of violence in those countries. In Burundi, ethnic violence erupted in the 1960s and continued into the 1970s, 1980s, and culminated in a major civil war in the 1990s. In Kenya the "Shifta war" in the 1960s gave way to peace and then a cycle of electoral and ethnic violence in the 1990s. Nigeria has gone from a large civil war in Biafra to relative peace, to ethnic rioting to massacres, to a second bout of civil war and back to rioting. India has seen several civil wars and hundreds of riots and pogroms. Cyprus saw an anti-colonial struggle in the end of the 1950s, a civil war in the 1960s, large intra-communal violence among Greek Cypriot moderates and radicals while intra-communal violence died down, then a second civil war and an international invasion in the 1970s. The DRC has seen every imaginable form of political violence since the 1960s, except perhaps genocide. It was common to see colonial violence transforming into civil war (e.g. in

Algeria in 1962, Mozambique in 1976, or Indonesia – West Papua in the 1960s) or civil wars to grow out of international wars (e.g. in Greece in the 1940s).

Coups and politicides can easily escalate into civil war (e.g. Costa Rica in 1948, Bolivia in 1952, Argentina in 1955). Civil wars can degenerate into organized crime, as in the case of Russia (Andrienko and Shelley 2002), Sierra Leone (Davies and Fofana 2002), or Colombia. Rubio (1995) has found that in 1995 in Colombia, 90% of the regions with the highest homicide rates also had active guerilla groups. This was not the result of ubiquitous presence of guerilla groups, as they were active in only 54% of all regions. He also found that 70% of these high-homicide regions also had substantially higher drug trafficking as compared to 23% of regions nationally. Sanchez, Solimano, and Formisano (2002) found similar evidence in their study that applied spatial econometric methods to analyze the spread of violence due to civil war and narco-trafficking across regions. As drug trade became more significant in Colombia, guerillas started to sell protection to drug lords and eventually became involved in the trade themselves to finance their insurgency. Eventually, the crime networks and the guerilla groups were indistinguishable from each other.

Criminal and political violence share a common causal link in state weakness. Organized crime can be considered an organization for extortion, smuggling and drug trade as well as an organization that provides security in areas where the state has no monopoly over the means of violence (Gambetta 1993). Organized crime flourished with the decline of state strength in Russia after the collapse of the USSR (Andrienko and Shelley 2002). The state's inability to maintain the prison population led to mass releases

of convicted criminals and haphazard privatizations increased the amount of “loot” over which criminals would fight (Andrienko and Shelley 2002).

“Loot-driven” violence may be a tactic of a political movement or a crime syndicate. The form that violence will take will be determined by the type of “loot” and the way that it can be appropriated. If ordinary crime or corrupt business practices are sufficient to fund criminal organizations, then civil war may not be necessary. If the goals of these organizations are greater, then there will be greater demand for larger-scale organization of violence. State capacity is again relevant here as it can deter the escalation of violence irrespective of the magnitude of loot-seeking incentives. But criminal and political violence combined can undermine state authority and capacity by creating production externalities for one another. In Sierra Leone, criminal activity accumulated violence-specific physical and human capital and war diverted the state’s attention from fighting crime (Davies and Fofana 2002). Over time, the rebels and criminals were indistinguishable from one another as the RUF recruited illicit diamond diggers and continued their operations while fighting against the state (Davies and Fofana 2002). The same occurred in Colombia, as guerillas provided protection for drug cartels and drug cartels financed the rebellion (Sanchez, Solimano, and Formisano 2002). War economies create constituencies that benefit from war and violence is sustained by the same logic of profiteering that supports criminal activity.⁷¹

Terrorism can also feed from crime and civil war and vice-versa. In Egypt, terrorism against Western tourists was the direct result of government suppression of and armed struggle against the Gamaat Islamiya, an insurgent group. The Israeli-Palestinian civil war (since the first Intifada of 1987) has been at the heart of international terrorism,

certainly during the period of PLO's involvement in supporting such activities (before the Oslo accords of 1997). Kidnappings in Colombia – up to 3,500 per year, according to BBC— are a direct consequence of the civil war and a means for the rebels to finance their insurgency by obtaining ransom.⁷² Chechen terrorism in Russia today is of course the outgrowth of the Russo-Chechen war. It is noteworthy to mention the regional linkages of that war, as Russia participated in the Georgian war in Abkhazia by supplying Chechen rebels to fight with the Abkhazians against the Russians in 1992-93 (Zurcher, Koehler, and Baev 2002). The “heroes” of the Abkhaz war against Georgia included Basaev, the Chechen warlord who later fought against the Russians and was labeled a terrorist.

These inter-relationships among various forms of violence (civil war, coups, terrorism, crime) are outside the purview of prominent models of civil war, but we cannot understand civil war without modeling the dynamics of escalating violence and what role economic and other variables play in that dynamic process.

Endogeneity

The view of civil war as the result of a dynamic process of escalating conflict suggests that the full impact of poverty on civil war onset will be difficult to measure in a regression that assumes exogeneity of the key explanatory variables. The relationship between economics and politics still remains murky in pooled logit or probit models without instrumental variables estimation, but proper analysis is impeded not only by the technical difficulty of estimating structural models with time-series cross-sectional data, but also by the difficulty of finding theoretically and empirically sound instrumental variables.

Yet, the problem of selection and endogeneity may be serious. Note, for example, that in Fearon and Laitin's (2003) model of civil war onset (using their replication dataset), the coefficient sign of the variable measuring a country's level of democracy (Polity) switches sign when we add income to the regression equation. And, if we estimate the model by dropping Latin American countries to test robustness, we find that Polity becomes statistically significant, with a positive sign – indicating that greater levels of democracy lead to civil war.⁷³ Indeed, high levels of poverty might indicate a government policy of repression, government indifference, and/or a deliberate policy of limiting redistribution. In such countries, the state does not rely on tax revenues from the average citizen to survive, but depends on extractive industry, foreign aid, and corruption. In such countries, civil wars might result from the collapse of patron-client relationships that support the shadow state or corrupt elites and not from the fact that poverty levels are high.⁷⁴

Several authors have explored the complicated pathways through which poverty and war interact, raising our concern with reverse causality in civil war models. Civil wars have been found to decrease health indicators in entire regions for years after the civil war ends (Ghobarah, Huth, Russett 2003); they lead to decline in savings, and deteriorating government revenue and expenditures (Stewart and Fitzgerald 2000), a decline in investment (Alesina and Perotti 1996), and slowing economic growth (Murdoch and Sandler 2002; 2003). All these effects point to a vicious cycle: most poor, bureaucratically inefficient states with declining living standards have violence and violence further contributes to the risk of state or policy failure and so on (Holsti 2000).

Going back to the ties between economics and politics: there is a logical link between poor governance and chronic widespread poverty. How could governments – especially democratic ones— persist for long periods without alleviating poverty? Those governments that are successful in that regard – many of them in Africa—must be able to draw support from oligarchs, substituting tax revenues for rents from resource extraction and foreign assistance from patron governments.⁷⁵ Thus, by classifying countries into countries with high/low levels of chronic vs. transitory poverty, perhaps we could indirectly test the link between poor governance, poverty, and civil war.

Who fights? Integrating the Micro & Macro Levels of Analysis

Economic models treat the poor as an undifferentiated class. But, do all the poor have equal proneness to political violence? We have seen that Becker-ian economic models of civil war seem to fit the macro-level data on all forms of violence: countries with low per capita GDP seem to be more prone to civil wars, coups, genocide, and terrorism. The reasonable inference from economic models is that people with the lowest economic opportunity costs – i.e. the poorest and least educated— will be those who do the fighting. That critical inference would establish a correspondence between the micro-level (individual decision-making) and macro-level (aggregate levels of violence between organized groups) in theories of insurgency. But the limited evidence we have so far from micro-level studies is mixed at best and seems to indicate that the economic models do not explain individual attitudes toward political violence or the decision to join a rebel organization.

Goodhand (2003) distinguishes between the transient and chronic poor.⁷⁶ Are the chronic poor equally, more, or less likely to participate in political violence than the

transient poor? Does the opportunity cost argument suggest that a temporary increase in the level of poverty should increase the risk of civil war? This seems consistent with the theory, but we should expect a significant lag for such an effect, given the high start-up costs of an insurgency and the high risk of injury or death. We should therefore expect a stronger association between chronic poverty and violence rather than between temporary increases in poverty and violence.

Indeed, the evidence seems to be consistent with this hypothesis, as the significant effects of per capita income disappear when we conduct an over-time, within-country analysis rather than mainly cross-country analysis. Income per capita is not significant in any of the conditional (fixed effects) logit regressions in Table 3, except only weakly (with a p-value of .07) in one regression using Fearon and Laitin's civil war list and controlling for war in the previous year (using the log of income).

I have omitted growth from the regression as it is always non-significant. Model fit is poor with fixed effects, especially using the Fearon and Laitin civil war list. Adding a year dummy in the fixed effects models does not change the results and the dummy is not significant, except when I control for civil war in the previous period. Taking the log of income also does not affect the results.⁷⁷ Income does not become significant using Sambanis's (2004b) data even if I drop the "ambiguous" cases that might not meet one or more of the criteria used to code a civil war.

In contrast to these results, Fearon and Laitin (2003) have found that the log of income is significant using fixed effects logit regression. But, their results are sensitive to a few cases (note that the number of groups is different in the two versions of the civil war variable used in Table 3). Moreover, using their replication dataset and simply

dropping the 3 years from the dataset (because they include at least 2 wars that are likely to be left-censored) makes income per capita non-significant.

Fixed effects models are very sensitive to measurement error, so it may be the case that the non-significance of income is due to error in coding war onset or other measurement problems as disagreements in the coding of war onset in the two datasets can be considered equivalent to measurement error. Moreover, the results in Table 3 do not answer the question of whether rebels are recruited among the chronically poor and we need more micro-level studies to answer that question.

Ideology, Identity, and Unit Heterogeneity

If the opportunity cost argument were a necessary and sufficient explanation of participation in a rebellion, why would rebel leaders use much more than economic incentives to encourage participation and prevent defection of insurgents?

According to many authors (e.g. Collier and Hoeffler 2000; Lichbach 1995), ideology is not necessary to sustain a rebellion and rebels will typically misrepresent their motives, so publicly held views or party ideology cannot be used to discern their true motives. In reality, however, rebel leaders use not only economic incentives, but also “political indoctrination, ethnic mobilization, and coercion.”⁷⁸ In some cases, ideology seems to trump economic incentives in the organization of rebellion: “Ideologically committed leaders – Mao Zedong, Che Guevara and Ho Chi Minh—banned economic violence among their forces and produced highly disciplined movements as a result.”⁷⁹ An important insight from insurgency studies is that ideology, organizational cohesion, and discipline, are all necessary to sustain rebellions through successive battles with the (usually stronger) government army. However, in some cases, particularly in African

conflicts, the state is so weak that it cannot resist any challenge. Rebel movements in those countries “can afford to focus on developing agendas (including economic agendas) that are usually incompatible with combat because they will not be fighting the states they confront in anything approaching a traditional civil war. Time-consuming political and ethnic mobilization may not be worth the investment required” (Herbst 2000, 284). Thus, an army of impoverished looters could lead an insurgency against a collapsing state.

Herbst’s observations might serve as the basis on which to selectively apply the opportunity cost and state weakness hypotheses to explain rebellion in different geographical regions. A useful distinction may also be made with respect to the type of conflict: economic incentives may be less important in pure ethnic wars as compared to other wars.

In ethnic wars, the “education” and “income” variables might not be as significant in explaining why people join rebellions. For example, the Collier and Hoeffler model predicts less than a 2% probability of civil war in U.K./Northern Ireland in 1970 – a probability estimate that is three times lower than the population average (Woodwell 2002). High secondary school attendance (top 13 in the world in 1970), high income per capita (not far off from Britain’s), and no natural resource dependence could all explain this low probability estimate. But, these economic statistics may not be central to the decision to join the insurgency as the IRA was a “volunteer force” that was more concerned with political ideology than with the economic opportunity costs of violence. Sambanis (2001) makes the argument that in pure “ethnic” conflicts –understood as conflicts between ethnic groups and over issues that are at the core of ethnicity— the

economic logic of insurgency will not dominate decisions to use violence. Consistent with that argument, Northern Ireland may be a case that illustrates the poor fit of an economic explanation of ethnic civil war.⁸⁰

The difficulty here may lie with classifying wars into ethnic and non-ethnic. In many cases, rebel groups are organized along ethno-religious lines, as in Burundi, where recruitment follows tribal lines (Ngaruko and Nkurunziza 2002, 31) or Lebanon, where recruitment and alliance patterns followed religious lines (Makdisi and Sadaka 2002). Some analysts use the pattern of rebel group organization, recruitment and alliance to classify wars as ethnic (Licklider 1995; Esty et al 1995; Sambanis 2004c). Others argue that ethnicity is used as a cover for economic motives (Collier and Hoeffler 2000), personal hostilities animosities (Kalyvas 2003), criminality (Mueller 2001), or an assortment of other motives that are not truly ethno-nationalist at their core (Brubaker and Laitin 1998).

Violence can indeed become ethnicized or dressed in a religious garb, as in Algeria (Lowi 2002), and it is difficult to discern how central ethnicity is to a conflict. But the economic argument is at times forced upon some wars where other explanations can also hold sway. In Algeria, Lowi (2002) argues that economic decline and demographic pressures led to the emergence of Islamist protest. But her work (and other sources on Algeria) point to more than one period of serious economic decline. Under Boumediene (1965-78), Algerian society saw a rapidly declining economic growth rate and increasing unemployment and corruption, yet there was no Islamic backlash. What was the impact of a “bankrupt” political system on Algerian society during successive

periods of economic decline? Might an explanation for Islamic protest be found in political, not economic, failure in Algeria?

Even if many conflicts can become ethnicized after they start and even though ethnic mobilization can be used by political elites to support non-ethnic rebellions, there is an empirical (perhaps even a theoretical) basis to argue that not all civil wars have the same causes and that pure ethnic wars are different from other war types, such as class-based revolutions. Sambanis (2004c) explores the distinctiveness of ethnic war by determining if (a) there exists a logical and empirical basis on which to base a typology of ethnic civil war; and (b) ethnic wars have a distinct causal logic from other war types.⁸¹ He argues that an ethnic basis for organization differentiates wars that are over ethnic-specific goods (such as secession) from wars over more widely distributed goods (such as revolution). Patterns of participation in the insurgency will be responsive to this fact and ethnic insurgents should be motivated less by economic opportunity as compared to non-ethnic insurgents.

It is true that ethnicity is not always salient and that ethnic identity can change over time. Some social systems can encourage pathological patterns of identity evolution, leading to the outbreak of civil violence (Anderson 1983; Brubaker 1995). Given that the salience of ethnic identity is malleable, the focus of much research on civil violence has been on the role of elites in manipulating ethnic, religious, or class identity to pursue private goals (e.g., Brass 1985, 1997; Rothschild 1986; Darden 2002). The constructivist literature has been partially successful in explaining why and how elites mobilize groups (Kasfir 1979; Brass 1985), but it cannot explain why groups define themselves along ethnic lines (as opposed to other identity categories) or why

membership in such a group draws upon a set of perceived objective, ascriptive characteristics that resemble kinship ties. If there is something special about ethnicity and ethnic ties, then wars that are aimed to preserve those ties may also have a special causal logic.

Thus, poverty and other economic variables may not influence civil war risk uniformly across potential types of conflict. And, since some countries at greater risk of separatist than revolutionary violence or vice versa, policies to reduce poverty and increase education will not be equally effective in reducing the risk of political violence in all cases.

Conclusion

In this paper, I have offered an analytical review of the literature on political violence, focusing on civil war and on the effects of economic variables, such as income per capita, GDP growth, education, and income inequality. The evidence from quantitative studies suggests a robust negative relationship between income per capita and most forms of political violence with the exception of terrorism. There is less convincing evidence on the effects of growth, education, and inequality. I offered several conjectures and indirect evidence to explain the non-significance of these economic variables. Fine-tuning of empirical models might uncover a stronger relationship, particularly between some types of inequality (e.g. regional inequality) and some forms of violence (e.g. separatist war).

Even in the case of income per capita, the evidence from quantitative studies is at times hard to interpret. Several plausible theoretical explanations can be imposed on the

data. Two prevalent theories of civil war –the opportunity cost theory and state weakness theory— use the same economic variables in empirical applications and are hard to disentangle. A closer look at the data is necessary, as there may be significant region and period effects that the theories ignore and substantial unit heterogeneity in the data. In particular, ethnic (separatist) wars may have different causes than other types of civil wars (e.g. class revolutions).

Importantly, preliminary evidence presented here suggests no significant effect of poverty on within-country variation in civil war onset. This may suggest that only long-term differences across countries' levels of poverty matter in explaining cross-national differences in the onset of civil war. A related conjecture is that short-term fluctuations in the level of poverty should not increase the risk of violence (though we did see some evidence from instrumental variables models that find a significant correlation between income shocks and violence in African countries). It may be the case that violence risks are magnified in countries with chronic poverty (these poverty rates are more stable and more likely to be picked up in cross-national studies). But these macro-level results are suggestive at best. We still do not have sufficient data from micro-level studies to know if the socio-economic characteristics of those who actually engage in violence conform with the theoretical interpretations we give to empirical analyses using macro-level data.

A serious challenge to the micro-foundations of rational choice economic theories of political violence (notably the opportunity cost theory) was leveled by a recent study on terrorism. That study revealed that terrorists are on average more educated and have a higher standard of living than the rest of their society. This is consistent with relative deprivation theories that were reviewed early on in this paper, but it may also be a region-

specific effect. I offered some conjectures that reconcile this finding with theories of civil war: terrorism can be viewed as proto-civil war, fought by elites with more education and greater commitment to their cause than the average rebel in a civil war.

A final conjecture is that economic incentives and opportunity are not the only explanations of political violence. Ideology, ethnicity, coercion, religion can all motivate participation in insurgency. The type of insurgency (ethnic/non-ethnic) and the form the violence will take (coup, terrorism, civil war) influence the mix of recruitment incentives. Thus, while there is ample evidence that raising levels of economic development will reduce the overall prevalence of political violence in the world, economic development alone is not sufficient to eliminate political violence. Violence changes forms over time and across space and forms a cycle that stops recurring only with successful state-building, combined with high levels of economic development. Policy interventions aimed at reducing violence should indeed have an economic core. But a strategy to eliminate, or reduce, organized political violence must necessarily be complex, targeting the various forms that violence might take at different stages in the political evolution of different countries.

Table 1 – Logit Models of Civil War Onset, 1945-99

Coefficients; stands errors in parentheses;

Bold indicates significance at .05 or higher; italics indicates significance at .10

Variable	FL2003 1. War start (a)	FL2003 2. War start (b)	FL2003 3. War start (b)	FL2003 4. War start (b)	Sambanis 5. War start (a)	Sambanis 6. War start (b)	Sambanis 7. War start (b)	Sambanis 8. War start (b)
GDP	-0.257 (0.071)	-0.262 (0.066)	-0.272 (0.069)	-0.248 (0.062)	-0.225 (0.065)	-0.242 (0.064)	-0.255 (0.067)	-0.249 (0.065)
GDP Growth	-0.315 (1.040)	-0.989 (1.301)	--	-3.523 (1.431)	-0.218 (0.868)	-1.272 (0.918)	--	-2.483 (0.974)
Instability	0.509 (0.257)	0.528 (0.236)	0.508 (0.236)	<i>0.432</i> (0.226)	0.527 (0.238)	0.554 (0.216)	0.527 (0.217)	0.438 (0.207)
Anocracy	0.683 (0.276)	0.633 (0.243)	0.646 (0.244)	0.726 (0.227)	0.663 (0.235)	0.566 (0.204)	0.601 (0.196)	0.659 (0.185)
Oil Exporter	0.337 (0.367)	0.505 (0.314)	0.488 (0.301)	0.405 (0.296)	<i>0.542</i> (0.283)	0.711 (0.234)	0.707 (0.231)	0.633 (0.235)
Ethnic fraction.	0.528 (0.474)	0.655 (0.428)	0.640 (0.435)	0.601 (0.405)	0.651 (0.486)	0.806 (0.410)	<i>0.751</i> (0.420)	<i>0.690</i> (0.420)
Population (log)	0.318 (0.076)	0.358 (0.067)	0.354 (0.071)	0.365 (0.070)	0.216 (0.063)	0.255 (0.056)	0.246 (0.059)	0.264 (0.058)
Terrain	0.008 (0.005)	0.007 (0.005)	0.006 (0.005)	0.006 (0.005)	0.005 (0.006)	0.004 (0.005)	0.004 (0.005)	0.005 (0.005)
P-time; War(t-1)	-0.001 (0.009)	-0.722 (0.230)	-0.726 (0.240)	-0.856 (0.240)	-0.002 (0.009)	-0.123 (0.230)	-0.117 (0.228)	-0.122 (0.231)
Constant	-9.478 (1.322)	-10.157 (1.212)	-10.043 (1.251)	-10.149 (1.229)	-7.668 (1.147)	-8.353 (1.034)	-8.149 (1.082)	-8.377 (1.054)
Observations	5123	5893	5934	6051	5162	5893	5934	6051
Wald χ^2 (d.f.)	80.28	86.52	71.90	89.20	63.65	68.71	64.34	69.04
Log-Likelihood	-344.34	-409.02	-417.92	-441.95	-422.16	-519.06	-531.81	-548.36
Pseudo R ²	0.0904	0.0889	0.0874	0.0960	0.0776	0.0839	0.0817	0.0875

Table 2: Effects of Income Inequality on Political Instability and Democracy (reported: coefficients and robust standard errors)

	Pooled Logit	Pooled Logit	OLS	OLS
Dependent Variable:	Instability	Instability	Polity score	Polity score
Income Gini (World Health Organization)	2.69 (.90)	--	-16.45 (5.81)	--
Income Gini (World Bank)	--	2.34 (.91)	--	-16.35 (5.37)
Constant	-2.74 (.40)	-2.71 (.44)	6.04 (2.45)	7.61 (2.42)
Observations	6305	4693	6466	4806
	Wald	Wald	F(1, 157)	F(1, 110)
	$\chi^2(1)= 8.98$	$\chi^2(1)= 6.69$	= 8.01	= 9.28
Pseudo-R ² (Logit); R ² (OLS):	0.0086	0.0087	0.0363	0.0484

Table 3 – Conditional (Fixed-Effects) Logit Models of Civil War Onset, 1945-99

Coefficients; stands errors in parentheses;

Bold indicates significance at .05 or higher; italics indicate significance at .10

Variable	FL2003 Version (a) of war start	FL2003 Version (a) of war start	FL2003 Version (b); add year control	FL2003 Version (b); log of GDP	FL2003 Add war at (t-1); log GDP	Sambanis Version (a) of war start	Sambanis Version (a) of war start	Sambanis Version (b); add year control	Sambanis Version (b); log of GDP	Sambanis Add war at (t-1); log GDP
GDP	0.049 (0.192)	-0.006 (0.162)	-0.094 (0.190)	-0.553 (0.375)	-0.688 (0.391)	0.065 (0.144)	0.049 (0.132)	0.047 (0.146)	-0.348 (0.339)	-0.399 (0.346)
Instability	0.473 (0.303)	0.344 (0.274)	0.338 (0.274)	0.279 (0.276)	0.572 (0.287)	0.557 (0.279)	0.470 (0.241)	0.470 (0.241)	<i>0.415</i> (0.244)	0.659 (0.251)
Anocracy	0.814 (0.317)	0.596 (0.264)	0.575 (0.265)	0.538 (0.265)	0.731 (0.283)	0.851 (0.276)	0.562 (0.230)	0.562 (0.231)	0.516 (0.231)	0.676 (0.240)
Oil Exporter	0.777 (0.760)	0.566 (0.618)	0.440 (0.636)	0.520 (0.648)	0.861 (0.717)	0.166 (0.617)	0.297 (0.529)	0.294 (0.537)	0.350 (0.544)	0.274 (0.551)
Population (log)	0.942 (0.461)	0.097 (0.383)	-0.683 (0.896)	-0.839 (0.887)	-1.113 (0.997)	0.714 (0.395)	0.307 (0.331)	0.280 (0.832)	0.037 (0.814)	-0.061 (0.841)
War at (t-1)	--	--	--	--	-2.565 (0.423)	--	--	--	--	-1.473 (0.287)
Year dummy	--	--	0.023 (0.024)	0.033 (0.024)	0.065 (0.026)	--	--	0.001 (0.022)	0.014 (0.022)	0.031 (0.023)
Observations	1780	2479	2479	2479	2479	2071	2783	2783	2783	2783
Groups	55	57	57	57	57	63	64	64	64	64
LR χ^2 (d.f.)	19.05	10.13	11.05	12.94	65.33	21.35	15.73	15.73	16.67	47.26
Log-Likelihood	-227.13	-307.86	-307.40	-306.45	-280.26	-284.19	-389.37	-389.37	-388.90	-373.61

Appendix

Table A1: Summary Statistics of Variables Used in Tables 1-3

Variable	Variable name	Obs	Mean	Std. Dev.	Min	Max
War Start (a)-Sambanis	warstns	6151	0.019	0.138	0	1
War Start (b)-Sambanis	warstnsb	6964	0.021	0.143	0	1
War Start (a)-FL2003	warst7	5743	0.017	0.129	0	1
War Start (b)-FL2003	warst7b	6565	0.017	0.129	0	1
Peacetime-Sambanis	ptwns	6151	18.843	14.433	0	54
Peacetime-FL2003	ptw7	5743	19.563	14.627	0	54
War at t-1, FL2003	war711	6406	0.139	0.346	0	1
War at t-1, FL2003	war711b	6564	0.136	0.343	0	1
War at t-1, Sambanis	warns11	6794	0.134	0.341	0	1
War at t-1, Sambanis	warns11b	6963	0.132	0.338	0	1
GDP per capita	gdpen	6286	3.698	4.517	0.048	66.735
% change of GDP/year	gdpgro	6130	0.023	0.086	-0.548	2.364
Political Instability	inst3	6398	0.156	0.363	0	1
Anocracy	anoc2	6562	0.228	0.420	0	1
Democracy	polity2	6562	-0.377	7.511	-10	10
Oil Dependence	oil2	6937	0.131	0.337	0	1
Ethnic Fractionalization	ef	6424	0.466	0.265	0.004	1
Log of Population size	lpopns	8611	15.446	1.765	10.434	20.947
Mountainous Terrain	mtnest	6494	18.277	21.085	0	94.3
Income gini (WHO)	giniwho	6522	0.385	0.087	0.187	0.609
Income gini (WB)	giniwb	4832	0.400	0.101	0.195	0.629

Table A2: Variable definitions and Sources

Variables	Definitions and Sources
<i>warstns</i>	War Onset; drop observations of ongoing war - Sambanis (2004)
<i>warstnsb</i>	War Onset, code ongoing wars as 0 unless new war starts (Sambanis 2004)
<i>warnsl1</i>	War ongoing in the previous year; coded on the basis of <i>warstnsb</i>
<i>warnsl1b</i>	Same as <i>warstns11</i> , but first observations in country series not lagged
<i>warst7</i>	War Onset; drop observations of ongoing war; Fearon & Laitin (2003)
<i>warst7b</i>	War Onset; code ongoing wars as 0 unless new war starts; Fearon & Laitin (2003)
<i>war711</i>	War ongoing in the previous year; coded on the basis of <i>warst7b</i>
<i>war711b</i>	Same as <i>warst711</i> , but first observations in country series not lagged
<i>ptw7</i>	Time until last war onset (<i>warst7</i>) - Fearon & Laitin (2003)
<i>ptwns</i>	Time until last war onset (<i>warstns</i>)- Sambanis (2004)
<i>gdpen</i>	GDP per capita; Fearon & Laitin (2003)
<i>gdpgro</i>	Annual change in per capita GDP (computed from <i>gdpen</i>)
<i>mtnest</i>	Mountainous terrain - Fearon & Laitin (2003)
<i>ef</i>	Fearon's (2003) ethnic fragmentation variable
<i>polity2</i>	Revised Polity score; Polity IV 2002 series (Marshall and Jaggers 2002)
<i>anoc2</i>	anocracy=1 if $-6 < polity2 < 6$; Polity 2002 series (Marshall and Jaggers 2002)
<i>inst3</i>	Coded 1 is annual change in <i>polity2</i> is greater than 2 (Sambanis 2004)
<i>oil2</i>	Oil Dependence; coded 1 if fuel exports > .33 of total merchandise exports, using World Bank WDI 1999-2003 data (Sambanis 2004)
<i>lpopns</i>	natural log population size (Sambanis 2004)
<i>giniwho</i>	Income gini; World Health Organization data
<i>giniwb</i>	Income gini; World Bank data

References

- Alesina, Alberto and Perotti. 1996. "Income Distribution, Political Instability, and Investment." *European Economic Review* 40 (June): 1203-1228.
- Anderson, Benedict. 1983. *Imagined Communities: Reflections on the Origins and Spread of Nationalism*. London: Verso.
- Andrienko, Yuri, and Louise Shelley. 2003. "Crime, violence, and conflict: Russia case study." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., August.
- Angrist, Joshua. 1995. "The Economic Returns to Schooling in the West Bank and Gaza Strip." *American Economic Review* 85 (5): 1065-87.
- Ballentine, Karen and Jack Snyder. 1996. "Nationalism and the Marketplace of Ideas." *International Security* 21 (2): 5-40.
- Becker, Gary. 1957. *Economics of Discrimination*. Chicago: University of Chicago Press.
- Blau, Judith R. and Peter M. Blau. 1982. "The Cost of Inequality: Metropolitan Structure and Violent Crime." *American Sociological Review* 47: 114-29.
- Braithwaite, John. 1979. *Inequality, Crime, and Public Policy*. Routledge & Kegan Paul.
- Brass, Paul R. 1985. *Ethnic Groups and the State*. London: Croom-Helm.
- Brass, Paul R. 1997. *Theft of an Idol: text and Context in the Representation of Collective Violence*. Princeton, NJ: Princeton University Press.
- Brubaker, Rogers and David D. Laitin. 1998. "Ethnic and Nationalist Violence," *Annual Review of Sociology* 24: 243-52.
- Collier, Paul. 2000. "Rebellion as a Quasi-Criminal Activity." *Journal of Conflict Resolution* 44 (6): 838-52.

Collier, Paul and Nicholas Sambanis, eds. 2004. "Economic Models and Case Studies of Civil War: Volumes 1 & 2." Unpublished book manuscripts.

Collier Paul and Anke Hoeffler. 2000. "Greed and Grievance in Civil War." *World Bank Policy Research Paper 2355* (May). Latest version available here "Greed and grievance in civil war. Centre for the Study of African Economies WPS 2002-01. Available at www.csae.ox.ac.uk/workingpapers/pdfs/2002-01text.pdf. Accessed 16 January 2004.

Collier, Paul, Lani Elliott, Havard Hegre, Anke Hoeffler, Marta Reynal-Querrol, and Nicholas Sambanis. 2003. Washington, DC: *Breaking the Conflict Trap: Civil War and Development Policy*. World Bank & Oxford University Press.

Crenshaw, Martha. 1981. "The Causes of Terrorism." *Comparative Politics* 13: 379-399.

Cunradi, Carol B., Raul Caetano, Catherine Clark, and John Schaefer. 2000.

"Neighborhood Poverty as a Predictor of Intimate Partner Violence Among White, Black, and Hispanic Couples in the United States: A Multilevel Analysis." *Annals of Epidemiology*, 10 (5): 297-308.

Darden, Keith. 2002. "The scholastic revolution." Unpublished paper, Yale University, October.

Davies, J. C. 1962. "Toward a Theory of Revolution." *American Sociological Review* 27: 5-19.

Davies, Victor A. B., and Abie Fofana. 2002. "Diamonds, crime, and civil war in Sierra Leone." Paper prepared for Case Study Project on Civil Wars, Yale University, 12-15 April.

- Deininger, Klaus and Lynn Squire. 1996. "A New Data Set Measuring Income Inequality." *The World Bank Economic Review* 10: 565-591.
- de Tocqueville, Alexis [1856] *The Old Regime and the French Revolution* (translated by John Bonner). NY: Harper and Brothers.
- Doyle, Michael W. and Nicholas Sambanis. 2004. "Making War and Building Peace: The United Nations after the Cold War." Unpublished book manuscript.
- Doyle, Michael W. and Nicholas Sambanis. 2000. "International Peacebuilding: A Theoretical and Quantitative Analysis." *American Political Science Review* 94 (4): 779-802.
- Esty, Daniel C., Jack A. Goldstone, Ted Robert Gurr, Pamela T. Surko, and Alan N. Unger. 1995. *Working Papers: State Failure Task Force Report*. McLean, Va.: Science Applications International Corporation.
- Fanzylber, Pablo, Daniel Lederman, and Normal Loayza. 2001. "Inequality and Violent Crime." *The Journal of Law and Economics* 45: 1-39.
- Fearon, James D. 2003. "Ethnic and Cultural Diversity by Country." *Journal of Economic Growth* 8: 195-222.
- Fearon, James D. 1995. "Rationalist Explanations for War." *International Organization* 49 (Summer)" 379-414.
- Fearon, James D., and David D. Laitin. 2003. "Ethnicity, insurgency, and civil war." *American Political Science Review* 97(1): 75-90.
- Finer, Samuel E. 1962. *The Man on Horseback*. London: Pall Mall.
- Gambetta, Diego. 1993. *The Sicilian Mafia: The Business of Private Protection*. Cambridge: Harvard University Press.

- Garfinkel Michelle R. and Stergios Skaperdas. 2000. "Conflict Without Misperceptions or Incomplete Information: How the Future Matters." *Journal of Conflict Resolution* 44 (6): 792-806.
- Ghobarah, H. A., P. Huth, and B. Russett. 2003. "Civil Wars Kill and Maim People – Long After the Killing Stops." *American Political Science Review* 97 (2): 189-202.
- Goodhand, Jonathan. 2003. "Enduring Disorder and Persistent Poverty: A Review of the Linkages Between War and Chronic Poverty." *World Development* 31 (3): 629-646.
- Grossman, Herschel I. 1995. "Insurrections." In *Handbook of Defense Economics*, edited by Keith Hartley and Todd Sandler, vol. 1. Amsterdam: Elsevier, 191-212.
- Grossman, Herschel I. 1991. "A general equilibrium model of insurrections." *American Economic Review* 81 (4): 912–21.
- Guillen, Abraham. 1973. *Philosophy of the Urban Guerilla: The Revolutionary Writings of Abraham Guillen*, translated and edited by Donald C. Hodges. New York.
- Gurr, T. R., M. Marshall, D. Khosla. 2001. *Peace and Conflict 2001: A Global Survey of Armed Conflicts, Self-Determination Movements and Democracy*. College Park, MD: Center for International Development and Conflict Management, University of Maryland.
- Gurr, Ted Robert. 1970. *Why Men Rebel*. Princeton, NJ: Princeton University Press.
- Hegre, Håvard, Tanja Ellingsen, Scott Gates, and Nils Peter Gleditsch. 2001. "Toward a democratic civil peace? Democracy, political change, and civil war, 1816–1992." *American Political Science Review* 95 (1): 33–48.

- Hegre, Håvard. 2003. "Disentangling Democracy and Development as Determinants of Armed Conflict". Paper presented to the Annual Meeting of International Studies Association, Portland, OR, February 27. URL:
<http://econ.worldbank.org/programs/conflict/topic/13193/library/doc?id=24637>
- Herbst, Jeffrey. 2000. "Economic Incentives, Natural Resources and Conflict in Africa." *Journal of African Economies* 9 (3): 270-294.
- Hibbs, Douglas. 1973. *Mass Political Violence: A Cross-National Causal Analysis*. New York, Wiley.
- Hirschleifer, Jack. 1995. "Theorizing about Conflict." In *Handbook of Defense Economics*, edited by Keith Hartley and Todd Sandler, vol. 1. Amsterdam: Elsevier, 165-92.
- Hobsbawm, Eric J. 1973. *Revolutionaries: Contemporary Essays*. New York.
- Holsti, K. J. 2000. "Political Causes of Humanitarian Emergencies." In E. W. Nafziger, F. Stewart, and R. Vayrynen (eds.) *Queen Elizabeth House Series in Development Economics and UN/WIDER Studies in Development Economics (vol. 1) War, Hunger, and Displacement: The Origins of Humanitarian Emergencies* Oxford: Oxford University Press, 239-281.
- Horowitz, Donald L. 2001. *The Deadly Ethnic Riot*. Berkeley: University of California Press.
- Horowitz, Donald L. 1985. *Ethnic Groups in Conflict*. Berkeley: University of California Press.

- Huff-Corzine, Lin, Jay Corzine, and David C. Moore. 1991. "Deadly Connections: Culture, Poverty, and the Direction of Lethal Violence." *Social Forces* 69 (3): 715-732.
- Humphreys, Macartan, and Habaye ag Mohamed. 2003. "Senegal and Mali." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., July.
- Huntington, Samuel P. 1968. *Political Order in Changing Societies*. New Haven, CT: Yale University Press.
- Johnstone, Ian. 1995. *Rights and Reconciliation: UN Strategies in El Salvador*. Boulder and London: Lynne Rienner Publishers, 1995.
- Kalyvas, Stathis N. 2003. "The ontology of "political violence": Action and identity in civil wars." *Perspectives on Politics* 1 (3): 475-94.
- Kasfir, Nelson. 1979. "Explaining Ethnic Political Participation." *World Politics* 31 (3): 365-88.
- Keen, D. 1998. "The Economic Functions of Violence in Civil War." *Adelphi paper*. London: International Institute for Strategic Studies.
- Kimenyi, Mwangi S., and Njuguna S. Ndung'u. 2002. "Sporadic ethnic violence: Why has Kenya not experienced a full-blown civil war?" Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., April.
- Kocher, Matthew A. 2004. "Human Ecology and Civil War." Ph.D. dissertation, University of Chicago.
- Krueger, Alan and Jitka Maleckova. 2002. "The Economics and Education of Suicide Bombers: Does Poverty Cause Terrorism?" *The New Republic* (June 24, 2002).

- Krueger, Alan B., and Jitka Malecková. 2003. Education, poverty, and terrorism: Is there a causal connection? *Journal of Economic Perspectives* 17 (4): 119-144.
- Lichbach, M. I. 1995. *The Rebel's Dilemma*. Ann Arbor, MI: University of Michigan Press.
- Licklider, R. 1995. "The Consequences of Negotiated Settlements in Civil Wars, 1945–1993." *American Political Science Review* 89 (3).
- Londregan, John B. and Keith T. Poole. 1990. "Poverty, the Coup Trap, and the Seizure of Executive Power." *World Politics* 151-183.
- Lowi, Miriam R. 2002. "Algeria, 1992–2002: Toward a political economy of violence." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn.
- Luttwak, Edward. 1969. *Coup d' Etat: A Practical Handbook*. New York: Knopf.
- Makdisi, Samir, and Richard Sadaka. 2002. "The Lebanese civil war: Background, causes, duration, and post-conflict trends." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., April.
- Mansfield, Edward and Jack Snyder. 1995. "Democratization and the Danger of War." *International Security* 20 (1): 5-38.
- Marighela, Carols. 1971. *For the Liberation of Brazil*. Harmondsworth: Penguin Books.
- Marshall, Monty and Keith Jagers. 2000. Polity IV Project. Codebook and Data Files: www.bsos.umd.edu/cidcm/inscr/polity.
- Marshall, Monty and Keith Jagers. 2002. Polity IV Project. Codebook and Data Files: www.bsos.umd.edu/cidcm/inscr/polity.
- Martinez, Luis. 1998. *The Algerian Civil War, 1990-1998*. New York, NY: Columbia University Press.

- Martinez, Ramiro, Jr. 1996. "Latinos and lethal Violence: The Impact of Poverty and Inequality." *Social Problems* 43 (2): 131-146.
- Merton, Robert K. 1957. *Social Theory and Social Structure*. Free Press.
- Merton, Robert K. and Alice K. Rossi. 1968. "Contributions to the Theory of Reference Group Behavior." In Herbert Hyman and Eleanor Singer, eds., *Readings in Reference Group Theory and Research* New York: Free Press, pp. 26-68.
- Miguel, Edward. 2003. "Poverty and Witch Killing." Unpublished manuscript, University of California Berkeley (March).
- Miguel Edward, Shanker Satyanath and Ernest Sargenti. 2004. "Economic Shocks and Civil Conflict: An Instrumental Variables Approach." Forthcoming in the *Journal of Political Economy*.
- Milanovic, Branko. 2003. "Worlds Apart: International and Global Inequality, 1950-2000." World Bank Working Paper.
<http://www.worldbank.org/research/inequality/June18Papers/TransBrook3.doc>
- Muller, Edward N. 1985. "Income Inequality, Regime Repressiveness, and Political Violence." *American Sociological Review* 50: 47-61.
- Mueller, John, 2001. "The Remnants of War: Thugs as Residual Combatants." Mimeo. Ohio State University.
- Murdoch, James and Todd Sandler 2003. *American Journal of Political Science*.
- Murdoch, J. C. & T. Sandler, 2002. "Economic Growth, Civil Wars, and Spatial Spillovers." *Journal of Conflict Resolution* 46 (1): 91-110.
- Nafziger, Wayne E. and Juha Auvinen. 2002. "Economic Development, Inequality, War, and State Violence." *World Development* 30 (2): 153-163.

- Ndikumana, Léonce, and Kisangani Emizet. 2003. "The economics of civil war: The case of the Democratic Republic of Congo." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., July.
- Ngaruko, Floribert and Janvier D. Nkurunziza. 2002. "Civil War and its Duration in Burundi." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.
- Paige, Jeffrey M. 1975. *Agrarian Revolution*. New York: Free Press.
- Parker, Robert Nash. 1989. "Poverty, Subculture of Violence, and Type of Homicide." *Social Forces* 67 (4): 983-1007.
- Paxson, Christina. 2002. "Comment on Alan Krueger and jitka Maleckova, 'Education, Poverty, and Terrorism: Is There a Causal Connection?'" http://www.wws.princeton.edu/~rpds/downloads/paxson_krueger_comment.pdf
[Accessed: April 26, 2004]
- Przeworski, A.; M.E. Alvarez, J.A. Cheibub, and F. Limongi. 2000. *Democracy and Development : Political Institutions and Well-Being in the World, 1950-1990*. Cambridge : Cambridge University Press.
- Reno, William. 1998. *Warlord Politics and African States*. Boulder, CO: Lynne Rienner.
- Ross, Michael L. 2002. "Resources and rebellion in Aceh, Indonesia." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., June
- Rothschild, Donald. 1986 "Interethnic Conflict and Policy Analysis in Africa." *Ethnic and Racial Studies* 9 (1): 66-86.
- Rubin, B. 1995. *The Fragmentation of Afghanistan: State Formation and Collapse in the International System*. Lahore: Vanguard Books.

- Rubio, Mauricio. 1999. *Crimen e impunidad: Precisiones sobre la violencia*. 1st ed. Bogotá: CEDE/Tercer Mundo Editores.
- Russell, D. E. H. 1974. *Rebellion, Revolution, and Armed Force: A Comparative Study of Fifteen Countries with Special Emphasis on Cuba and South Africa*. New York, Academic Press.
- Sambanis, Nicholas. 2004a. "Using Case Studies to Expand Economic Models of Civil War." *Perspectives on Politics* 2 (2): 259-281.
- Sambanis, Nicholas. 2004b. "What is A Civil War? Conceptual and Empirical Complexities of an Operational Definition." Forthcoming in *Journal of Conflict Resolution*.
- Sambanis, Nicholas. 2004c. "What is Ethnic War? Organization and Interests in Ethnic Insurgency." Working Paper, Yale University.
- Sambanis, Nicholas. 2001. "Do ethnic and nonethnic civil wars have the same causes? A theoretical and empirical inquiry (Part 1)." *Journal of Conflict Resolution* 45 (3): 259-82.
- Sanchez, Fabio, Andres Solimano, and Michel Formisano. 2003. "Conflict, violent crime, and criminal activity in Colombia." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., July.
- Sandler, Todd. 2003. "Collective Action and Transnational Terrorism." *World Economy* 26 (6): 779-802.
- Sandler, Todd. ed. 2000. *Journal of Conflict Resolution* 44 (6).
- Shapiro, Ian. 2002. "Why the Poor Don't Soak the Rich," *Daedalus* 131 (1).

- Singer, J. David, and Melvin Small. 1994. *Correlates of War Project: International and Civil War Data, 1816–1992*. Ann Arbor, Mich.: Inter-University Consortium for Political and Social Research.
- Skaperdas, Stergios. 2001. “An economic approach to analyzing civil wars.” Paper presented at the World Bank Conference on Civil Wars and Post-Conflict Transitions, University of California, Irvine, 18–20 May.
- Smith, Dwayne M. and Robert Nash Parker. 1980. “Type of Homicide and Variation in Regional Rates.” *Social Forces* 59 (1): 136-147.
- Snyder, Jack 2000. *From Voting to Violence: Democratization and Nationalist Conflict*. New York: Norton Publishers.
- Stewart, Frances. 2000. “The Root Causes of Humanitarian Emergencies.” In E. W. Nafziger, F. Stewart, and R. Vayrynen (eds.) *Queen Elizabeth House Series in Development Economics and UNU/WIDER Studies in Development Economics (vol. 1) War, Hunger, and Displacement: The Origins of Humanitarian Emergencies*. Oxford: Oxford University Press, 1 - 42.
- Stewart, Frances. 1998. “The Root Causes of Conflict: Evidence and Policy Implications.” Paper prepared for the UNU/WIDER-Queen Elizabeth House Conference on War, Hunger, and Displacement: The Economics and Policies of Humanitarian Emergencies, Stockholm, June 15-16.
- Stewart, F. and V. Fitzgerald. 2000. *War and Underdevelopment. Volume I. The Economic and Social Consequences of Conflict*. Oxford: Oxford University Press

- Summers, Robert and Heston, Alan. 1991. "The Penn World Table (Mark 5): an expanded set of international comparisons, 1950-1988." *Quarterly Journal of Economics* 106 (2): 327-68.
- Tilly, Charles. 2004. "Terror, Terrorism, Terrorists." *Sociological Theory* 22: 5-13.
- Tilly, Charles. 2003. *The Politics of Collective Violence*. Cambridge, MA: Cambridge University Press.
- Weinstein, Jeremy M., and Laudemiro Francisco. 2002. "External actors as a source of war and peace in Mozambique." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., April.
- Woodwell, Doug. 2002. "The 'troubles' of Northern Ireland: Civil conflict within an economically well-developed state." Paper prepared for Case Study Project on Civil Wars, May.
- Zinn, Annalisa. 2003. "Theory versus reality: Civil war onset and avoidance in Nigeria, 1960–1999." Paper prepared for the World Bank, Yale University project on the Political Economy of Civil Wars, June
- Zürcher, Christoph, Jan Koehler, and Pavel Baev. 2002. "Civil wars in the Caucasus." Paper prepared for Case Study Project on Civil Wars, New Haven, Conn., October.

Endnotes

¹ A civil war is an armed conflict which causes more than one thousand deaths; challenges the sovereignty of an internationally recognized state; occurs within the recognized boundaries of that state; involves the state or state-claimants as a principal combatant; and involves rebels with the ability to mount organized armed opposition to the state (see Doyle and Sambanis 2000, pp. 779-802). A coup is an unlawful overthrow of the regime; it must involve groups (military or civilian) claiming the government of a sovereign state and those groups must be at least partly recruited locally.

² See, e.g., Collier and Hoeffler (2000), on civil war; and Krueger and Maleckova (2003), on terrorism.

³ See, for example, Russell (1964), Paige (1975), and Muller (1985).

⁴ See the collection of articles in the December 2000 special issue of the *Journal of Conflict Resolution*, edited by Todd Sandler.

⁵ For example, if the government promised to pay criminals not to commit crime in an attempt to reduce the costs of policing, this could create adverse incentives in the previously law-abiding population. Many would be encouraged to commit crimes or threaten to commit them, so as to be included in the deal between the state and criminals. As the hoards of potential criminals expanded, the costs of the deal would become prohibitively high, making the government's commitment to it non-credible.

⁶ See Collier (2000, 838-52).

⁷ Their theories incorporate a number of other variables that purport to measure the opportunity structure for rebellion, including a country's population size, ethnic

composition, mountain coverage, diaspora support, resource-dependence, war history, and political system. Due to space constraints, I do not discuss these theories in detail.

⁸ State weakness is referred to as a cause of insurgency in several earlier studies – see, e.g., Hobsbawm (1973); Russell (1974).

⁹ The most common measures of education are the primary enrollment ratio, secondary school enrollment ratio, and years of education achieved. Some studies that emphasize the role of education in reducing social conflict and violence include Huntington (1968), Hibbs (1973), Alesina and Perotti (1996), Collier and Hoeffler (2001).

¹⁰ More than 50% of the terrorists in their study have more than secondary education as compared to 15% for the general population.

¹¹ Krueger and Maleckova's results might apply only to the Middle East (Paxson 2002).

¹² Terrorism often occurs in countries that experience other political violence, such as civil war. The two largest sources of terrorism in Krueger and Maleckova's data are India and Colombia, both of which had civil wars in the period covered in the data. Of all civil war countries, only the Central African Republic, Congo, Guinea-Bissau, Nepal, and Papua New Guinea did not have any terrorism in their data.

¹³ See, e.g., Crenshaw (1981), Sandler (2003), and Tilly (2004).

¹⁴ On riot violence, see Horowitz (2001). There is organization in rioting, as well, but it does not rise to the level of organization in terrorism or civil war and riot events are far more spontaneous than other organized violence.

¹⁵ Martha Crenshaw (1981, 384) writes that terrorists are generally well educated and middle-class in background, or disillusioned young professionals. There is evidence from geographical regions other than the Middle East that perpetrators of terrorist events

(e.g. suicide bombing) are relatively highly educated (e.g. Sri Lanka). There is also evidence that rebellions are led by relatively highly educated people. The leader of the SPLA in the Sudan has a PhD in Agricultural Economics from an American university. The Sri Lankan rebellion was motivated by educated Tamils who were disproportionately affected by the lack of economic opportunities in the south (Goodhand 2003, 636).

¹⁶ Otherwise, we would have to explain the puzzle the less educated people are better able to realize the futility of violence than are educated individuals.

¹⁷ One exception is if the public is convinced in the legitimacy of government policy. In this case, terrorists will have a hard time influencing policy. Conversely, if legitimacy is low, then terrorists will have access to a wider base from which to recruit members.

They may chose to recruit the most highly educated candidates, if they believe that there is a positive correlation between education level and successful terrorist “career.”

¹⁸ Stewart (1998; 2000); Stewart and Fitzgerald (2000); Russell (1974); Keen (1998).

¹⁹ See Horowitz (1985) on ranked systems. This relationship has not yet been tests in large-N studies, but it seems to be confirmed by several case studies.

²⁰ De Tocqueville, [1856], p. 214; cited in Davies (1962, 6).

²¹ For that view, see Snyder (2000); Mansfield and Snyder (1995); Ballentine and Snyder (1996); Hegre et al. (2001).

²² Merton and Rossi (1968). Martinez (1996), for example, found that higher intra-Latino inequality increases the incidence of Latino violence.

²³ Parker (1989, 986).

²⁴ Ian Shapiro (2002) “Why the Poor Don’t Soak the Rich,” *Deadalus* 131 (1).

²⁵ Using the Chain index and Summers and Heston data for the period 1960-1999, the values are \$2,176 for war-countries and \$5,173 for no-war countries. Average growth rate for war-countries is 1.07% per five-year period, whereas for no-war countries, the mean growth rate is 1.8%.

²⁶ Using Polity IV data (Marshall and Jaggers 2000), the average polity score for war countries, coding periods of war and regime transitions as “0” on a -10 to 10 range, is -2.13, while the average for no-war countries is 1.36, showing a slightly more open polity.

²⁷ See, also, Gurr et al 2001.

²⁸ I use the “Polity2” series from the PolityIV data project, version 2002, to construct the anocracy and instability variables.

²⁹ *Ef* was constructed by Fearon (2003).

³⁰ I used data from the World Bank and other sources to complete the population series. See online supplement for more information.

³¹ Population size may be significant because of the high threshold of deaths required to code a civil war. See Sambanis (2004b) for more details.

³² Polity IV project coders sometimes code the democracy and autocracy variables, the difference of which is *polity2*, as missing when a war is ongoing and missing values of *polity2* are then either interpolated or coded as “0.” This makes it likely for a country at war to be coded as an anocracy. A similar problem can be noted with regard to the political instability variable. I nevertheless use them since they are typically included in models of civil war in the literature.

³³ By lagging independent variables, we lose the first observation. Fearon and Laitin (2003) restore these observations by lagging only after the second observation.

³⁴ In their own analysis, Fearon and Laitin (2003) find this variable to be significant and positive, but there are some differences in the coding of my “oil” variable and theirs. See Sambanis (2004b) for more details.

³⁵ See, for example Luttwak (1969); Finer (1962).

³⁶ They use time-series analysis and model the potential reverse causation between coups and economic growth, finding no such significant effect. They control for the country’s past history of coups and parse out the relative effects of income level and rate of growth.

³⁷ For a review, see Parker (1989).

³⁸ See, for example, Smith and Parker (1980). This distinction is interesting and analogous to the distinction between ethnic/secessionist and nonethnic wars (Sambanis 2001), in that it tries to see if the poverty model of violence applies equally to all major classifications of violence.

³⁹ Miguel (2003). The statistical results are obtained through instrumental variables estimation, using rainfall variation to estimate the impact of income shocks on murder. The author reviews related literatures (eg. anthropology) and finds extensive evidence of killing of unproductive household members (the elderly and infants) in poor pre-industrial societies.

⁴⁰ Cunradi, Caetano, Clark, and Schaefer (2000).

⁴¹ Their model may apply only to Africa and agricultural economies. The instrumental variable is rainfall variation, which affects agricultural crops in African economies.

⁴² See Doyle and Sambanis (2004). The result was obtained in a Weibull model of the duration of peace after the end of civil war, using time-varying covariates. This result is

robust to the use of different estimators and to the addition of various controls to the model.

⁴³ Krueger and Maleckova (2002) note that during the two bouts of insurgency associated with the Intifada in Israel, we observed one period of economic expansion and one economic contraction. Horowitz (2001) surveys the literature on riots and finds no support for the common hypothesis that commodity shocks and slow growth increase the prevalence of riots.

⁴⁴ This is a speculation articulated by Nafziger and Auvinen (2000, 154).

⁴⁵ Sources from the social movement literature.

⁴⁶ Nafziger and Auvinen (2002) use Deininger and Squire's (1996) data and find that stagnation, decline in GDP, and income inequality are sources of humanitarian emergencies (a broader category than civil war).

⁴⁷ Collier and Hoeffler (2000); Fearon and Laitin (2003).

⁴⁸ For a recent attempt to better measure world inequality using high-quality data, see Milanovic (2003).

⁴⁹ See, for example, Huff-Corzine, Corzine, Moore (1991).

⁵⁰ See, for example, Bates (1989), who argues that land disputes are at the core of conflict in Kenya between the Kikuyu and other groups.

⁵¹ Group-based studies also exist and have some advantages over other approaches, but the paucity of data at the group level has precluded the estimation of a fully-specified model of war onset.

⁵² They measure political instability by an index of social unrest consisting of a number of variables, including political assassinations, deaths due to mass violence, the number

of coups, a binary indicator of dictatorship, an indicator for “anocracies.” There are serious problems with data quality for many of these variables that can undermine the reliability of their regression results, though their addition of regional dummies may partially offset region-specific reporting problems with the data.

⁵³ This is the way political instability is measured in Fearon and Laitin (2003).

⁵⁴ Another issue is that the R-square is so low that we could not use the gini as an instrumental variable (for political instability).

⁵⁵ This section draws on Sambanis (2004a).

⁵⁶ The Case Study Project on Civil Wars began in the spring of 2000. I was the PI from July 2001 until the project’s completion, in June 2004. Teams of country experts wrote the case studies; in most instances, an author from the country under consideration worked with an author from a U.S.-based institution. The following countries were included: Algeria, Azerbaijan, Bosnia, Burundi, Colombia, Democratic Republic of Congo, Georgia, Indonesia, Ivory Coast, Jamaica, Kenya, Lebanon, Macedonia, Mali, Mozambique, Nigeria, Russia, Senegal, Sierra Leone, Sudan, and United Kingdom (Northern Ireland). Some of these countries had more than one civil war. The following case studies were commissioned but never completed: Afghanistan, El Salvador, Moldova, Somalia, Sri Lanka, and Uganda.

⁵⁷ The first guidelines given to authors are posted at www.yale.edu/unsy/civilwars/guidelines.htm. (More detailed instructions were given at two conferences –in Oslo, Norway, in June 2001, and in New Haven, Connecticut, in April 2002.) Go to pantheon.yale.edu/~ns237/index/research.html#Cases for a summary assessment of the models used in each case. The cases will be published in an edited

volume (date and publisher to be determined). For more details on the project and a review of the results, see Sambanis (2004b) and Sambanis (2003)

⁵⁸ Collier-Hoeffler find that the risk of war is 50% greater in the period immediately after the previous war ends as compared to other periods. Doyle and Sambanis (2004) confirm that relationship using a Cox proportional hazard model of peace duration, using a different dataset.

⁵⁹ Measuring GDP differently might help: Purchasing Power Parity (PPP)-adjusted measure of GDP should be more relevant as a measure of economic opportunity cost; while constant-dollar GDP figures are more consistent with their state strength argument, since they describe the overall size of the economy.

⁶⁰ That death toll qualifies the cases as a civil war according to most criteria, but Collier and Hoeffler code no civil war in the U.K. But the total number of deaths is still very low for such a lengthy insurgency.

⁶¹ Woodwell (2002, 16-17) also notes the deterrent effect of the Royal Ulster Constabulary's strength of 13,500 members.

⁶² Witness the public debate in the United States in mid-April 2004 about the military tactics used by the Marines and civilian casualties during fighting against Iraqi insurgents in the town of Falluja.

⁶³ Some datasets (e.g. Doyle and Sambanis 2004) code a civil war in Kenya in 1991- 93 due to the extensive involvement of the state in organizing and financing the violence. But this is an ambiguous case and may be classified better as inter-communal violence.

⁶⁴ Perhaps the high levels of education may explain why the CH model predicted no war in Lebanon. This is a case of a false negative prediction.

⁶⁵ All former-USSR states had drastically falling income and growth rates during the period of collapse of the USSR. It is unclear, therefore, how much of the declines in Georgia, Azerbaijan, and Chechnya that I mention in the text were due to the war and how much to the collapse of the Soviet state.

⁶⁶ Ndikumana and Emizet, (2002)

⁶⁷ Ngaruko and Nkurunziza (2002, 5).

⁶⁸ This also helps disentangle the effects of democracy and income. See Hegre (2003), for example, finds that democracy significantly reduces the risk of civil war in low-income countries. Tilly's (2003) typology also distinguishes between high-capacity democracies and low-capacity democracies (and autocracies). Low-capacity democracies should be at as high a risk of civil war as low-capacity autocracies.

⁶⁹ For example, using the Doyle and Sambanis (2004) data, the means test rejects equality of means of income per capita across war type with a p-value of 0.0028.

⁷⁰ Cf. Angrist (1995); and see Krueger and Maleckova's interpretation of Angrist's findings.

⁷¹ See Lowi (2003) and Martinez (1998), with reference to the Algerian civil war.

⁷² BBC Monitoring Latin America – Political Supplied by BBC Worldwide Monitoring, November 22, 2002.

⁷³ These results are available from the author. The model is estimated on 5,152 observations, and Polity (lagged) has a coefficient of .0398 with a standard error of .0187.

⁷⁴ Collier and Hoeffler (2000) and Fearon and Laitin (2003) posit as a hypothesis that the end of the Cold War might have resulted in such instability as many client regimes in Africa and elsewhere suddenly found themselves unsupported. They do not find

statistical evidence to support this argument; but Reno (1998) offers more convincing case-based descriptions of civil wars that result from the collapse of the shadow state.

⁷⁵ See Reno (1998) for a discussion with reference to African states. See Rubin (1995) for an application of this argument to Afghanistan.

⁷⁶ Goodhand (2003) notes that studies on political violence have treated the poor as an “undifferentiated” category (p. 629).

⁷⁷ Nor does adding the first observation in each country series, as in table 1. I do not show these results in Table 3.

⁷⁸ Herbst (2000, 271).

⁷⁹ Keen (1998, 33), cited in Herbst (2000, 272).

⁸⁰ At the same time, high unemployment among Catholic men – if this had been accounted for in the CH model – would have increased the probability estimate for a rebellion among Catholics due to easier rebel recruitment.

⁸¹ According to the state weakness argument, there should not be any significant difference in the correlates of ethnic and non-ethnic war onset.