CPR Working Papers

Social Development Department
Environmentally and Socially Sustainable Development Network

Paper No. 5
May 2003

Using Case Studies to Expand the Theory of Civil War

Nicholas Sambanis

Table of Contents

USING CASE STUDIES TO EXPAND THE THEORY OF CIVIL WAR[1]

1. INTRODUCTION

More than one hundred and forty civil wars around the world since 1945 have killed approximately 20 million people and displaced 67 million.[2] Despite this massive scale of human misery associated with civil war, the academic community had not concentrated much attention to the problem of civil war until very recently. A major catalyst for increased academic and policy work aimed at understanding civil war and reducing its prevalence was the World Bank project on the Economics of Political and Criminal Violence. The World Bank, primarily due to the efforts of its Research Director Paul Collier, conceptualized civil war as a development problem and applied economic models to explain the occurrence, duration, and consequences of civil war. 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.[3] 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.[4] If civil wars are produced by poor political and economic conditions, then we may be able to design policy interventions that reduce their occurrence, mitigating the scale of human suffering that these conflicts have caused in recent history.

Recent contributions to the formal and quantitative literature made advances in explaining civil war—its causes, duration, and termination. Prominent among these contributions is the flagship paper for the World Bank project—the Collier-Hoeffler (2000) model of civil war onset (henceforth called CH)—which has been very influential in shaping current research on the relationship between conflict and development.[5] Its main result is that civil wars tend to occur not necessarily where there is more underlying political grievance or ethnic division, but where the organization of rebellion is financially viable. This result is based on a large-N econometric test of a simple micro-economic model of rebel demand and supply.

In this paper, I consider how we can use a comparative case study research design to make a scholarly contribution to the civil war literature by expanding and complicating economic models of civil war. I extend and modify the CH model by drawing causal inferences about the causes of civil war based on a set of comparative case studies that were designed to answer a set of questions that are central to the CH model. The paper also has a methodological contribution in demonstrating how large-N quantitative research and qualitative case-study research designs can be usefully combined to address a substantively important problem.

---

[1] I thank Ian Bannon, Colin Scott, Ana Paula Lopes and especially Keith Darden for very useful comments and Annalisa Zinn and Steven Shewfelt for excellent research assistance. I gratefully acknowledge financial support from the World Bank's Post-Conflict Fund. This study is part of the "Political Economy of Civil Wars," a collaborative research project between the World Bank and Yale University.

[2] These figures are based on a new dataset compiled by Doyle and Sambanis (2003).

[3] 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%.

[4] Using Polity IV data (Marshall and Jaggers 2001), 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.

[5] The CH paper forms the core of a forthcoming World Bank Policy Research Report *Breaking the Conflict Trap: Civil War and Development Policy*.

My main source of material is a set of case studies written for a collaborative World Bank-Yale University project on the "Political Economy of Civil Wars."[6] Each of the case studies explores the fit of the Collier and Hoeffler (2000) model to the particular case and develops alternative explanations of war (or its absence) in the country being studied. I draw on these analyses of more than twenty civil wars to: (a) refine the measurement of variables used in the CH model so as to gauge the degree to which the empirical proxies used in the CH model actually measure the theoretically significant variables; (b) outline the causal mechanisms through which independent variables in economic models of civil war influence the risk of war onset; and (c) identify new variables that might be significant determinants of civil war risk but are omitted from the CH model; and (d) explore the question of unit heterogeneity among cases of civil war and among forms of political violence.

This last point—on unit heterogeneity—forms the basis of a theoretical contribution of this paper. While the quantitative literature has typically pooled events of civil war and analyzed them while assuming that they constitute homogeneous observations, it may be the case that not all civil wars share the same determinants. In earlier research (Sambanis 2001; 2002c) I have explored the differences between ethnic/secessionist and revolutionary civil wars and between civil wars and politicides or genocides (Sambanis 2003). In this paper I begin to develop a more nuanced and complicated theory of political violence that explains civil war as one of several possible forms in which violence may be organized. This is a theory of ecologies of violence that recognizes that civil war (ethnic or revolutionary) shares many common determinants with other forms of violence, such as international war, inter-communal violence, coups, genocide, even organized crime. At the same time, these are also different "ecologies" that may be explained by a particular mix of motives and environment constraints within which actors design their strategies. The case studies offer evidence that support initial hypotheses about how different forms of violence arise and how the groups involved in different ecologies of violence are organized.[7]

Overall, the case studies suggest that, while the CH model of war onset describes well the reality of some cases, it frequently falls short of making accurate predictions of the process through which civil war occurs. Even where it correctly predicts the outcome of civil war (i.e. it predicts a war onset where a civil war actually occurred), it often does so for the wrong reasons. Focusing on this distinction—between process and outcome—offers a way to reconcile quantitative and qualitative research designs which are often (mistakenly) considered as substitutes rather than complements in political science. While quantitative analysis is the best way to analyze the covariance of civil war as outcome of a political process and the many potentially important determinants of that process; the way in which these determinants influence war over time is better described in qualitative case-based research. By taking a closer look at actual cases of civil war, this paper suggests several ways in which economic models of civil war such as the CH model could be improved. A key point concerns the distinction between "greed" and "grievance" in the CH model. The case studies offer a much more nuanced view of the process leading to civil war and show that greed and grievance are inextricably fused motives for civil war. But fusing these two explanations of civil war must go beyond simply adding some "greed" and "grievance" variables to a regression equation. Rather, the case-studies suggest that greed and grievance are hues of the same variables and that it is often impossible to distinguish between these overlapping and mutually reinforcing motives for political violence.

---

[6] The author was Primary Investigator (PI) for the case study project. Information on the project may be found at http://www.yale.edu/unsy/civilwars/civilwars.htm. The following case studies of war onset or war avoidance were drafted: Algeria, Azerbaijan, Bosnia, Burundi, Chechnya, Colombia, Georgia, Democratic Republic of the Congo (DRC), Jamaica, Indonesia, Ivory Coast, Kenya, Lebanon, Macedonia, Mali, Mozambique, Nigeria, Northern Ireland, Russia, Senegal, Sierra Leone, and Sudan. Studies on the following countries were initiated but not completed: Afghanistan, El Salvador, Moldova, Somalia, Sri Lanka, Uganda.

[7] I develop a theory of the "ecology of violence" elsewhere and sketch out some preliminary thoughts in this paper. I borrow the term "ecologies" from Michael Doyle (2002), whose essay on transitional authority in post-civil war societies makes use of the term to describe different "worlds" of peacebuilding, each world representing different challenges but also sharing some characteristics with other worlds.

The paper is organized in the following sections, beyond the introduction and the conclusion. Section 2 provides a discussion of methodological concerns that the case study allows us to address. It explains how the case study project interacts with large-N statistical studies to develop better theory and test the fit of the CH model to a large number of countries. Section 3 provides a very brief overview of the CH model and the main empirical results of the model so as to create the context within which we can evaluate the detailed discussion of the case study project. Section 4 begins the synthesis of the case studies by focusing on data measurement and operationalization of key variables, suggesting a number of refinements to the CH model that can be implemented relatively easily, if the relevant variables are appropriately measured. Section 5 draws on the findings of more than twenty case-studies to expand the theory underlying the CH model of civil war onset. Several modifications of the CH model are recommended and the empirical evidence that supports these recommendations is summarized by presenting illustrative examples from the case studies. These recommendations essentially sum up to a new theoretical model that can be tested empirically if new variables are coded and included in the dataset. Section 6 concludes with an overview of the contribution of the case study project to the World Bank's research agenda in the Economics of Political and Criminal Violence.

2. METHODOLOGICAL ISSUES AND THEIR SUBSTANTIVE IMPLICATIOSN

A number of questions concerning methodology typically arise with any case-study project. King, Keohane, and Verba (1994; henceforth referred to as KKV) have identified important concerns with qualitative research design and have suggested ways to resolve them. KKV also raise issues pertinent to the World Bank-Yale case study project: Is the research design in each case study determinate? Do the studies suffer from selection bias? Is the sample of cases representative of the population, or is this an analysis of "crucial" case studies? Can the cases say anything about other phases of civil war, except onset? Do they provide sufficient historical detail to support counterfactual analysis? Do the cases constitute independent, homogeneous observations?

In this section, I address these questions with reference to the World Bank-Yale case study project and explain the project's research design.[8]

What Were the Goals of the Case Study Project?

The main purpose of the case study project was to supplement the quantitative analysis of the CH model so as to improve the causal inferences drawn on the basis of that model.

Causal theories should explain *how* a particular outcome (in this case, civil war) occurs and *how* different explanatory variables lead to that outcome. Causal theories should identify necessary and sufficient conditions for civil war. The CH model develops an economic theory of civil war that is based on an analysis of the demand and supply for rebellion (more on the CH model later). The model is based on the logic of individual decision-making that determines if one will participate in civil war. However, this essentially micro-economic model of political violence is tested empirically using macro-level data that describe conditions under which individual decision-making takes place. The empirical findings of the CH model, therefore, do not necessarily test the micro-level theory of civil war.[9] Given that the CH

[8] The project's research design was developed by the Author, in collaboration with co-managers of the World Bank project on the Economics of Political and Criminal Violence. The project proposal was drafted in 1999 and the project was initiated in 2000. After research teams were identified, the research part of the project was launched with an international conference in Oslo, Norway in June 2001. First drafts of the case studies were presented at a conference in New Haven, CT, in April 2002. The PI gave detailed instructions for revisions to all case study authors (24 case studies were included at that stage) and second drafts were submitted around December 2002.

[9] Green and Seher (2002) identify this as a generic problem in the literature on ethnic conflict. The literature clearly suffers from a disjuncture between an abundance of macro-historical evidence and macro-political explanations of violence, on the one hand, and a scarcity of individual-level or group-level data and theories of violent conflict.

model and the literature on civil war more generally suffer from such a "missing link" between micro-level theories and macro-level data, we need a different approach to better understand *how* the variables used in our empirical models influence the probability of civil war. The case studies can provide insight into the causal paths linking independent variables to the dependent variable and are better than statistical studies in disentangling complicated multi-causal relationships.

Case study authors in this project were asked to perform process tracing and write narratives of individual cases by focusing on a set of common questions,[10] thereby providing the raw material with which to perform "structured-focused comparisons" across cases. Authors were asked to focus on the mechanisms through which the right-hand-side variables (the X's) influence the dependent variable (Y) and were encouraged to explore inter-relationships among the X's (interaction effects).[11] The fact that such a large number of case studies systematically addressed the same questions implies that this project was better suited than most other comparative case study projects to test a theoretical model. But since the CH model has been tested empirically using large-N statistical methods, the case study project had to be given other priorities, such as theory-building and exposition of the mechanisms through which the variables in the CH model influenced civil war onset. By developing alternative explanations of war, the case studies explored some of the unexplained variance in the CH data. By exploring micro-level processes and tracing their linkages to macro-level analysis in the CH model, case studies provide us with clues on how to merge these two levels of analysis. Close attention to country context also allows us to reduce measurement error and improve the "canned" proxy variables that are used in the statistical analysis.

History does not repeat itself—at least not exactly in the same way. So, the best we can do to learn about the future by analyzing the past is to try to draw causal inferences about outcomes and processes while minimizing the degree of uncertainty associated with these inferences. Short of experimental methods (which do not lend themselves to study the question of civil war onset), statistical analysis is the best way to minimize such uncertainty. Thus, the World Bank–Yale project developed the case study project as a secondary source of analysis geared mainly at revising or fine-tuning the formal or deductive models of civil war that form the basis of statistical tests of economic theories of civil war.

The case study project has value-added because we cannot understand the *process* through which war breaks out simply by looking at the results of large-N quantitative studies. In most cases, quantitative studies present correlations between X and Y that need not demonstrate causality.[12] Moreover, even if we identify a broad causal relationship between X and Y, we often cannot distinguish among several possible causal mechanisms that can describe that relationship.[13] In other words, statistical methods can help us perform hypotheses tests, not necessarily to distinguish among rival theories.[14] Case studies give us a "feel" for the data that allow us to develop better judgment in discriminating among possible explanations. They can also tell us much about how each event fits in the distribution of the class of events that we call "civil wars." If the statistical analysis identifies outliers (i.e. predictions that are two or more standard deviations from the mean predicted value of Y), case studies can help us understand if

[10] A set of questions was given to all authors at the Oslo, Norway conference. All authors had read and discussed a set of core papers, including the CH paper on "greed and grievance in civil war" and had been briefed on the specific targets of the case study project.

[11] Process-tracing is a method of making historical arguments about causal processes. It explains the "process by which initial conditions are transformed into outcomes… [and] uncovers what stimuli the actors attend to: the decision process that makes use of these stimuli to arrive at decisions; the actual behavior that then occurs; the effect of various institutional arrangements on attention, processing, and behavior; and the effect of other variables of interest on attention, processing, and behavior" (George and McKeown 1985, 35). See, also, George (1979).

[12] See Sambanis (2002) for a discussion of problems of endogeneity in recent research on civil wars.

[13] KKV (1994, 86) discuss the difference between causality and causal mechanisms.

[14] See, for example, how the finding of a statistically significant negative relationship between per capita GDP and civil war has been interpreted to support an "economic opportunity" theory of civil war by Collier and Hoeffler (2000) and a "state capacity" theory of civil war by Fearon and Laitin (2003). The same hypothesis test has been used to inform two different theories as two different causal mechanisms have been identified by the two papers.

this prediction failure is due to systematic variation that is not captured by the model or to idiosyncratic reasons that the model should not try to explain. If several case studies point to a few potentially significant variables that are missing from the model, we could adjust our theories/model and see if these variables can be incorporated. Coding these variables for all observations in the CH dataset would allow us to test their fit to the data using statistical methods. This approach offers a truly interactive way to blend quantitative and qualitative research that can develop and test better theories of civil war by identifying new causal effects.[15]

This back-and-forth between case studies and quantitative research designs reflects the view that case-studies alone cannot easily develop generalizable theory or test theories empirically. There is potentially an inordinate amount of historical detail that the analyst must sort through to explain an outcome in a purely inductive manner. No amount of historical detail can be sufficient to recreate past events and the analyst's decision of which events to discuss reflects a "prior" belief in plausible explanations for the event in question. Trying to "fit" a multivariate explanation of war to a single case also runs into the familiar problem of indeterminacy (negative degrees of freedom). Our case study project gains degrees of freedom due to the sheer number of wars (and periods of no-war) that it seeks to explain; and by the fact that the number of variables that are used to explain patterns of war are limited by the variables included in the CH model and only a few additional ones that are at times proposed by the authors. Moreover, most cases are selected on the basis of their fit to the model—we select both cases that the CH model explains well and cases that can be characterized as Type I and Type II prediction errors. Thus, in our case study project, the results of the statistical analysis and the CH model impose a discipline on the case studies that facilitates comparisons across cases.

Case Selection

The fact that case analysis serves a secondary function in this project has implications for case selection. If we relied primarily on the case studies to test the CH theory (or at least the hypotheses deriving from the theory), then cases would have had to have been selected so as to provide a representative sample of countries both with and without wars. But the large number of causal relationships implied by the CH model makes it increasingly difficult to use case study methods for empirical tests (Ragin 1987, 49). To avoid problems of identification and multicollinearity we would have needed many more cases to test the model's fit. The smaller the number of cases, the fewer the degrees of freedom and the higher the uncertainty about our inferences.

Random selection and assignment is typically the best to reduce risk of endogeneity, selection, and omitted variable bias. Random selection of 15-20 countries to include in our study would have resulted in a sample that predominantly included cases of no-war, given that civil war occurs relatively rarely. This problem might have been countervailed by a selection rule that favored selection of cases of war (King and Zheng 2001). But, again, the familiar problems of case-study design—primarily identification and counterfactual reasoning problems—would have been difficult to overcome.

Also important was the fact that the World Bank project had a "capacity-building" component and a strong interest in understanding the link between conflict and development in poor countries. A research design that selected, for example, three no-war countries for every civil war country (cf. Esty et al. 1995; King and Zheng 2001) would have included far too many middle-to-high-income countries in the sample. This focus was not consistent with the mandate of a development organization such as the World Bank, which focuses on less developed countries. Moreover, if the relationship between some variables included in the CH model and the likelihood of civil war is different in rich industrialized countries as

[15] KKV (1994, 81) define causal effect as "the difference between the systematic component of observations made when the explanatory variable takes one value and the systematic component of comparable observations when the explanatory variable takes another value."

compared to poor countries, this selection rule could bias the statistical analysis.[16] Recent research suggests that civil war dynamics may not be similar in rich and poor countries: for example, democracy is correlated with peace only in highly developed countries (Hegre 2003). Case studies can help us identify the different institutional pathways through which democracy may prevent civil war outbreak in rich countries, but not in poor countries. This is essentially a question about unit heterogeneity in the CH data and is one that has not yet been properly addressed in most studies of civil war. If we did have heterogeneity in the data, a random sampling rule would not be the way to create a representative sample for the empirical tests.

Thus, to circumvent these problems, we selected cases partly on the dependent variable, i.e. we selected some cases of no war and, among countries that had war, we picked cases with both good fit and poor fit to the CH model's predictions (false positives and false negatives).[17] Given that in all cases we knew the values of the dependent variable (i.e. we knew when and where civil wars had taken place), the research design could not legitimately aim to predict values of the dependent variable.[18] By selecting cases with different predicted values of the dependent variable, our project avoids the problem of no-variance in the dependent variable which is often encountered in case study research.

The selection of negative cases resembles Mill's "indirect method of difference" in that it "uses negative cases to reinforce conclusions drawn from positive cases… The examination of negative cases presupposes a theory allowing the investigator to identify the set of observations that embraces *possible* instances of the phenomenon of interest" (Ragin 1987, 41).[19] Typically, case-studies have difficulty in identifying such negative cases "in the absence of strong theoretical or substantive guidelines" (Ragin 1987, 42). Our project makes the application of this method easier, since we identify negative cases on the basis of (theoretically-based) predictions from the core model.

We did not focus exclusively on the dependent variable in selecting our cases. We also wanted to ensure sufficient variation in some key explanatory variables. Thus, we partly selected cases according to their past history of violence; the level of ethnic fragmentation; the degree of dependence on natural resources.[20] Selection on independent variables alone is described as "the best intentional" research design by KKV (1994, 140). We typically knew the values of some of the explanatory variables (e.g. which country is ethnically homogeneous and which heterogeneous).[21] But, since the CH model controlled for these IVs in the regressions, selecting cases to ensure variation in the independent variables did not create any inference problems.[22] A matched case-selection might have been a better research design if we wanted to develop a theory "from scratch." However, the purpose of this project was to build on and refine existing theories of civil war by identifying the causal mechanisms underlying these theories and exploring the fit of the CH model to particular contexts/countries.

---

[16] This argument is made convincingly by Horowitz (1985), who focuses his discussion of ethnic conflict on underdeveloped countries. Horowitz argues that people/groups in advanced industrialized countries have richer identity repertoires and ethnicity need not be the most salient identity.

[17] Predicted probabilities of civil war onset were based on pooled logit estimates of the core CH model.

[18] According to KKV (1994, 141), selecting "observations across a range of values of the dependent variable" is a legitimate "alternative to choosing observations on the explanatory variable."

[19] By contrast, the "method of agreement" identifies necessary conditions that are linked to the observation of a positive outcome.

[20] Selecting on the independent variables does not introduce any bias, but may reduce efficiency of parameter estimates. See KKV (1994, 137).

[21] We did not use a research design that depended entirely on categories of the explanatory variables because the aim of such a design is to "find out the values of the dependent variable." See KKV (1994, 139). We already knew which countries had had a civil war.

[22] KKV (1994, 94) write that "If the process by which the values of the explanatory variables are "assigned" is not independent of the dependent variables, we can still meet the conditional independence assumption if we learn about this process and include a measure of it among our control variables." They also write that, if cases are selected on the basis of values of a given variable, that variable must be controlled for in the model. Thus, we only selected cases on the basis of variables from the CH model.

In the initial case selection (around the end of 1999), there might have been selection bias in the World Bank project. Cases were selected according to the availability of known researchers with professional linkages to the World Bank. Also, partly as a result of DECRG staff country expertise, the selection of cases heavily favored inclusion of African civil wars. Since there is a correlation between poverty and civil war, the selection of poor African countries might have influenced the results. To reduce any bias, we increased the number of studies, adding cases outside Africa (Northern Ireland; Bosnia, Macedonia, and four cases from the Caucasus). We also made sure to control for the selection rules in the model: i.e. if ethnic diversity, low democracy, and high poverty all make Africa particularly prone to civil wars, we would reduce any bias in our estimates by controlling for these variables in the quantitative model.[23]

Having decided on the selection rules, we instructed case study authors to focus on the civil country or the civil war as their unit of observation. Most case studies analyze periods of peace and war. If a country had recurrent wars (e.g. the DRC), then the case study should analyze all or most of these wars and explore the time-dependence between these events. If a country is free from civil war (Macedonia; Ivory Coast until the end of 2000), the study should analyze periods of high risk of war when war did not materialize. In effect, each case study provides several observations. For example, the Indonesia study focuses on patterns of war and peace in Aceh over eight five-year periods and can therefore be considered a study of 8 observations (2 observations of war and 6 of no-war). The Nigeria study analyzes the politics of several regions over several periods and traces the development of false positive and false negative predictions of the CH model in two different regions of the country in the late 1960s and 1980s. This actually makes it difficult to establish clearly how many observations we have in each case study and we end up with many more observations for some countries than for others. The uncertainty about the precise number of observations makes it more difficult to accurately "test" the CH model using a comparative case study design. Hence the need to use case studies to complement, rather than replace, quantitative tests.

Ultimately, it may be impossible for any case study design to present a compelling and historically accurate test of a theory or even of a set of hypotheses about the relationship between an antecedent and a consequent. But the set of structured-focused comparisons that were written for this project can provide rich context against which to evaluate the soundness of the CH economic model of civil war. Case studies illuminate "the logic of the argument rather than the validity of its empirical claims"… "Careful historical arguments yield a story about *why*. . . variables should be related to each other" (Huber 1996: 141).[24]

Identifying Causal Mechanisms

One of the main contributions of any case study project is that it can explain *how* the antecedent is connected to the consequent. KKV (1994) argue that many case studies do not achieve this goal due to three frequently encountered methodological problems: endogeneity, selection, and omitted variable bias.[25] These problems, however, are also commonly found in quantitative studies of civil war.[26] In fact, rather than being more susceptible to these problems that statistical analysis, case studies can better grapple with endogeneity and selection and, by constructing a "thick description" of the events leading up

[23] Another "fix" is to include several shorter cases studies (i.e. less depth, but broader coverage) to see if the analysis of those countries is compatible with the analysis of the in-depth cases (KKV 1994, 127).

[24] According to Huber (1996, 142), case studies "should not take the motivations of individuals as exogenously specified but can treat these preferences as elements of the story that need to be described and explained."

[25] Omitted variable bias occurs when a variable is omitted that is correlated with the dependent variable and one or more of the included explanatory variables (KKV 1994, 169). Endogeneity, in its purest form, refers to simultaneous causation between Y and one or more of the X's. Selection bias refers to the problem of observing an outcome only as a function of an unobserved variable. See Przeworski and Vreeland (2002) for a methodological discussion of selection and an application.

[26] See Elbadawi and Sambanis (2002) and Sambanis (2002a) for a discussion of endogeneity and selection problems in the quantitative literature on civil war.

to a civil war, they can help us understand if the model we use to explain war may suffer from omitted variable bias. Case studies can reconstruct the chronology of a conflict and they can deal with endogeneity by establishing the sequence of events. They can also help us gauge the degree of selection and multicollinearity between pairs of explanatory variables by analyzing a historical narrative that highlights the importance of each variable for the politics of the country being studied.

Case studies can help address the methodological problems mentioned above by identifying causal mechanisms that link the X's to the Y. They can also help us distinguish among several possible mechanisms that can explain the same outcome. We probably cannot know all the mechanisms that link the X's to the Y in the CH model, but we can and should identify some central ones. In the familiar language of KKV (1994, 86), "we can define a causal effect without understanding all the causal mechanisms involved, but we cannot identify causal mechanisms without defining the concept of causal effect."

Identifying causal mechanisms shifts the focus of inquiry from the outcome to the process that leads to that outcome. According to some authors, understanding the process is more important than explaining a specific outcome. In their new research project on the "dynamics of contention," McAdam, Tarrow, and Tilly (2001, 4) aim to show "how different forms of contention—social movements, revolutions, strike waves, nationalism, democratization, and more—result from similar mechanisms and processes" and "explore combinations of mechanisms and processes to discover recurring causal sequences of contentious politics." In their work and the work of other political scientists, social processes are understood as sequences and combinations of causal mechanisms. Mechanisms are defined (2001, 24) as a "delimited class of events that alter relations among specified sets of elements in identical or closely similar ways over a variety of situations." So, for example, in explaining resource mobilization in the classic social movement literature, authors would focus on "environmental, cognitive, and relational mechanisms" (p. 25) such as the "significance of organizational bases," "resource accumulation," and the "collective coordination for popular actors" (2001, 17). The authors, however, put their finger on an important problem, that of separating mechanisms from correlations and distinguishing between a mechanism and a process (a family of mechanisms).

Ethnic mobilization, for example, can be considered as both a mechanism and a process, as can political identity formation. Another example is the interesting "sons of the soil" argument that Fearon and Laitin (2003) make to explain political violence as the result of conflict between migrant communities and autochthonous populations in peripheral regions of countries. Can we be certain that migration is the mechanism through which we get ethnic violence in these cases? If we look "upstream," we can locate an earlier mechanism in the government's decision to reduce the strength of peripheral ethnicities. Migration of other ethnic groups in their areas is one of several possible mechanisms through which violent conflict between peripheral communities and the state can develop. While we cannot hope to identify all possible mechanisms or establish a hierarchy among them, we can use our case study project to go beyond the statistical analysis in explaining *how* each X influences Y. The task for the case study authors is to provide a sufficiently detailed process-tracing, i.e. a narrative of the way in which civil war erupts.

Counterfactual Reasoning

Mechanisms are useful in structuring counterfactual arguments, which are "conditional statements of the form: 'Y happened because X happened' and imply that 'if X had not happened, Y would not have happened' … Counterfactuals "make claims about events that did not actually occur" (Fearon 1991, 169).[27] Comparative case studies and hypothesis testing through statistical analysis are related to, but

[27] Polsby (1982, xi) describes counterfactual reasoning as follows: "thought experiments, products of the imagination making use of our codified, certified knowledge of how social institutions and processes work and introducing just enough imaginary variation in the circumstances bearing on these institutions and processes to help us understand why they work as they do."

different from, counterfactual analysis. According to Fearon (1991, 170), "analysts with few cases and many variables are compelled to resort to counterfactual argument by a *statistical* principle." If one conducts a statistical analysis, counterfactual testing may not be necessary, since the logic of counterfactual testing is part of the statistical method.

Yet, some of our authors do resort to counterfactual reasoning in exploring the validity of alternative hypotheses for the wars they analyze. In those cases, we should be concerned with the plausibility of the counterfactual and we should try to distinguish among several possible mechanisms and counterfactuals. In those studies where authors propose new causes of war or peace outcomes, the case study can be seen as a large-N, time-series analysis. By explaining why an event occurred *when* it did, authors essentially take a time-series view of politics in the country. The problem with such case studies is that the data analysis cannot be done as systematically for every period (year, month, or week) as it might be done in a quantitative study. Given that the N is not specified *ex ante* in these studies, it is hard to gauge the validity of the counterfactual (how much detail do we need and how can we gauge the level of uncertainty associated with our causal inferences?).

Fearon's (1991) criteria to evaluate counterfactual arguments are useful in that regard. First, we need rationality and legitimacy: the counterfactual must be based on established theories.[28] There is little cause for concern for our project here, as both the CH model and the case studies are based on principles of microeconomic theory and expected utility theory. Second, the counterfactual antecedent must be 'cotenable' with the facts or 'initial conditions' used to draw the inference, meaning that if the antecedent had actually occurred, the initial conditions could have also occurred" (Fearon 1991, 193). With respect to this criterion, most case studies in our project may fail since they do not tell us if changing the antecedent would imply changes to other factors (e.g. if a change in leadership in Yugoslavia could have reduced the manipulation of ethnic tensions that fueled the Croatian and Bosnian wars, how likely might such a leadership change have been at the time?)

Even if we were able to determine that counterfactual reasoning is rational, legitimate, and contenable, we still have the problem of discriminating among many possible causes of an event while trying to minimize the risk of omitted variable bias. Each additional variable that we introduce requires additional counterfactuals and exacerbates the degrees of freedom problem. The more counterfactual scenarios we create, the less precise they will be (Fearon 1991, 178).

But a pure counterfactual strategy is not necessary if we do not have negative degrees of freedom. Given that the main way to test hypotheses in our project is statistical, we can utilize the case studies mainly as ways to flesh out the causal mechanisms suggested by the models and could use counterfactual reasoning sparingly to propose new causes of civil war, without having to provide a test of these counterfactuals in the case study. Mixing actual and counterfactual case analysis in this way can strengthen each approach (Fearon 1991, 186).

Unit Heterogeneity

Most of the literature has so far considered civil war as an aggregate category with the implicit assumption that different types of civil war do not have substantive differences with respect to their causes. This assumption of unit homogeneity has not yet been proven in the literature. As I explain later in this paper, the case study project is particularly useful in testing the heterogeneity assumption and outlining important differences and similarities among forms of violence.

According to KKV (1994, 91), "two units are homogeneous when the expected values of the dependent variables from each unit are the same when our explanatory variable takes on a particular value." If our

[28] Fearon (1991, 193) writes that "a counterfactual assertion is judged true if the counterfactual antecedent, when joined with appropriate theories and facts, implies the consequent."

models predict civil wars and other events of political violence (e.g. genocides) equally well (or equally poorly) then either our models have omitted variables that can help us differentiate between the causes of these events, or these forms of violence are not as different as we originally thought. Later in this paper, I draw on the case studies to develop some preliminary arguments about the linkages across different forms of violence. This is the basis of a new theory of political violence that I am currently developing. While a common core might be found, connecting various forms of violence, such as genocide and civil war (see, e.g., Sambanis 2003), important differences may also be identified, as between secessionist and revolutionary civil wars (Sambanis 2001; 2002c). The case studies can help us better understand what forms of violence the CH model might be able to explain.

The assumption of homogeneity also implies constant effects (e.g. across countries and time periods). Most of the influential models of civil war onset (Collier and Hoeffler 2000; Fearon and Laitin 2003; Hegre et al. 2001) assume constant effects. However, if this assumption is wrong, it is likely to bias our causal inferences (KKV 1994, 94). Case studies allow us to explore the homogeneity of our observations and not to assume that *apriori* (Ragin 1987, 49). If we suspected substantial unit heterogeneity, an alternative approach would have been to utilize a "most similar systems" design—i.e. choose only cases from sub-Saharan Africa or some other region so as to "control" for several explanatory variables and isolate the "treatment" variable, in an effort to create a research design as close as possible to experimental design (Przeworski and Teuny 1970; Ragin 1987, 48). Such an approach, however, would have resulted in exploring only "within-systems relationships" (Przeworski and Teuny 1970, 57-59) and might not have allowed us to develop further the CH model, which is not region-specific. Early results from the quantitative literature (Collier and Hoeffler 2002) also point to no statistically significant differences across regions (e.g. Africa versus the rest of the world) with respect to the fit of the CH model. This suggests that we can forego a "most similar systems" approach.

From Statistics to Cases and Back to Statistics

In sum, the case study project performs many useful functions. It helps us test the internal validity of economic theories of civil war that underlie the CH model; it reduces data measurement problems that complicate the interpretation of quantitative results from the CH model; it addresses endogeneity and selection through detailed historical narratives and a chronological sequence of events; it identifies and selects among causal mechanisms that explain the *process* of civil war; and it identifies potentially omitted variables that might lead us to draw new causal inferences about the causes of civil war.

The cases benefited from the statistical analysis of the CH model because they were selected (at least partially) based on the model's predictions and the narratives presented for each case are structured on the basis of the explanatory variables from the CH model. The case studies will then feed into the statistical analysis, as newly coded variables and refined proxy variables from the CH model can be used to re-estimate the model and revise earlier empirical results. The case study project therefore expands the theory of civil war and improves our ability to test hypotheses derived from that theory.

In the next sections, I draw from more than twenty case studies of civil war and civil peace to identify causal mechanisms, refine empirical measures, and illustrate all the functions of the case study project as outlined above. By necessity (by design), this must be done by taking a selective look at each case and drawing examples to illustrate arguments about mechanisms or data measurement. If we had instead decided to review the lessons learned from each study with respect to whether or not an empirical proxy used in the CH model must be revised to have a better fit to the theoretical argument, then this project would have be become intractable as the discussion of measurement issues would have resembled the debate about coding that goes into the construction of a new dataset. Similarly, if we had considered whether or not a causal mechanism that is identified in one case study also applies to all other case studies, then the project would have become intractable. That sort of comparison is better left to statistical analysis. That is why we revert to the CH model and test some of the different measures and the

hypotheses that derive from the case-based analysis of causal mechanisms in this paper.[29] To illustrate mechanisms and discuss data measurement issues in this paper, I selectively draw examples from these case studies. I draw key lessons from some cases (or groups of cases), but these lessons cannot (and should not) include every detail or argument made in the case study.[30] To facilitate a comparison across cases and demonstrate how the CH model fits each case, Appendix 1 includes twenty tables, each corresponding to a case study written for the project, briefly discussing what the values of each core variable would suggest for the fit of the CH model to what actually happened in each country (i.e. is the model's prediction for the case consistent or inconsistent with what actually happened?). These tables also include outlines of the authors' evaluations of other variables that might have been relevant in explaining war outcomes in their cases. Appendix 1 demonstrates how these case studies can be used to support comparative case analysis, by providing a comparison of the CH model's fit to the cases of Bosnia (war) and Macedonia (no war).

3. THE COLLIER-HOEFFLER MODEL OF CIVIL WAR ONSET

The CH model is by now well-known to researchers in the civil war literature. It is a cornerstone of empirical work in this sub-field. So that the discussion that follows can make sense to those who are not intimately familiar with the model, I summarize its logic and main findings below (readers familiar with the model can skip to the next section). I then turn to the case studies and consider issues of data measurement and variable operationalization and provide an extensive discussion of modifications to the CH model that can be suggested on the basis of these data issues.

Theoretical Underpinnings of the Collier-Hoeffler Model

The CH model is based on the logic of a tradeoff between productive and appropriative economic behavior (Grossman 1991, 1995; Hirschleifer 1989, 1995; Konrad and Skaperdas 1999). Participation in a civil war is explained as a rational decision, influenced by the economic opportunity cost of war and the net expected utility of war. Incentives to participate in an insurrection amount to "exit" from the realm of institutionalized politics. War, however, is an inefficient way to resolve disputes from a purely Coasian perspective (Skaperdas 2001) because it is costly and reduces the net value of rents available to the state. The fact that we observe war despite this inefficiency is due to "three interacting determinants: *preferences*, *opportunities*, and *perceptions"* (Hirschleifer 1995, 172). It is also frequently the case that, even where a mutually agreeable solution can be found, it may not be credibly enforced if the government, the rebels, or both, have incentives to violate their agreement and resort to the use of force (Skaperdas 2001; Fearon 1995).

According to the CH model, this dynamic generates motives and opportunities for war. The authors make a rather simplistic distinction between "greed" and "grievance" explanations of civil war (see, also Collier 2000a, 2000b) and eventually argue that "greed" (or the desire for economic gains) is what explains political violence.[31] CH view rebels as "bandits," "pirates" (Grossman 1999, 269), "quasi-criminal" (Collier 2000a), "greedy" war entrepreneurs who are not necessarily motivated by objectively measured grievance or an ideology to right social wrongs.[32] The language of grievance may be borrowed to

[29] This section is currently being drafted and is not included in this version of the paper.
[30] A selection of case studies will be published in an edited volume. Final drafts of all case studies will be posted online upon the project's completion at: http://www.yale.edu/unsy/civilwars/civilwars.htm.
[31] The "greed-grievance" distinction was particularly evident in Collier's earlier work. In later work, the distinction became one between "preferences and constraints."
[32] Collier and Hoeffler (2001, 3) write that "On the literal greed interpretation the extortion of primary commodity exports will occur where it is profitable, and the organizations which perpetrate this extortion will need to take the form of a rebellion."

legitimize a rebellion and increase the level of support that the rebels get from the public. But the critical factor is the ability to organize and support an effective rebellion.[33]

According to the CH model, rebellion is sustained through the looting of natural resources, extortion of local population, and support from ethnic diasporas. Insurgency is less likely when the state is strong or when the economic opportunity cost of rebellion is high. State strength is not well-theorized in the model and is approximated by the size of the country's economy (GDP per capita). The argument is that the government's response to a challenge by rebels will be more effective and efficient, the higher the country's tax base and the better the quality of its bureaucracy. According to Collier and Hoeffler "Controlling for the structure of income, an increase in the level of income is likely to favor the government since, as income rises, the share of income taken in taxation also tends to rise. As the government is strengthened financially relative to the rebels, the risk of conflict is likely to be reduced" (Collier and Hoeffler 2001, 5). The expectation is, therefore, that relatively richer states will be better able to defend themselves against rebellion. By increasing the expected costs of rebellion, these states increase the constraints and reduce the opportunity for rebellion.

Incentives for rebellion rise with the net expected gains from rebellion, which are a positive function of the country's natural resource base. However, large rents from natural resources can also increase the state's strength. Thus, CH expect that an abundance of easily lootable commodities will increase war risk but, at very high levels, revenues from oil or mineral exports might also increase the state's ability to spend more on the military, reducing the rebels' expectation of a victory in an armed confrontation with the state. By contrast, insurgency is more likely as the supply of available rebels increases. That supply is explained by economic factors in the CH model. Ideology and ethnic identity do not matter much as *causes* of a rebel's decision to join an insurgency. Rather, everyone is a potential rebel, if the net (expected) economic benefits of rebellion are greater than the net benefits of the status quo. Thus, we see here an argument about economic opportunity costs, generated between the tradeoff between productive and appropriative activity. If the earnings foregone by the rebels engaged in an insurgency are low, then their incentives for rebelling are high. Under these conditions, what determines whether one will rebel is not so much one's level of objective grievance, but rather one's expected utility calculation and the group's ability to overcome its financing constraint. In countries with abundant resources which can finance rebellion and rugged terrain, where rebels can hide from the government army, the probability of rebellion is high.

In sum, a country's economic opportunity structure (level of income, economic growth, and the structure of the economy) determines the "supply" of insurgency for a given level of insurgency "demand."

Empirical Results of the Collier-Hoeffler Model

Quantitative tests of the CH model have produced several apparently robust findings: poverty exacerbates the risk of civil war; high economic growth reduces the risk of war (allegedly because the opportunity costs of violence rise); and the technology of insurgency (mountainous terrain; external financing from diasporas) increases the risk of war by making it more viable. There is also strong evidence pointing to reduced war risk in countries with high levels of secondary school enrollment, particularly among males. CH find a significant positive relationship between natural resource dependence (measured by the share of primary commodity exports in GDP) and civil war risk, but other scholars challenge this finding and find no support for the "resource predation" hypothesis.[34] Civil war also seems more likely in countries with large populations, but the reason is poorly understood (see Sambanis 2002a). Contrary to works in political science (e.g. Gurr 2000), CH find that democracy does not significantly affect the risk of civil war. This they interpret as evidence that political "grievances" are insufficient motives for war. Similarly

[33] The same logic underlies the Fearon and Laitin (2003) model of civil war.
[34] See Fearon and Laitin (2003); Elbadawi and Sambanis (2002). Berdal and Malone (2002) find a positive association between war and diamonds and other easily lootable commodities.

they find that ethnic fractionalization does not significantly influence war risk but that the interaction of ethnic and religious fractionalization actually reduces the risk of civil war. However, ethnic dominance, which occurs when the largest group comprises 45-90% of the population, increases the risk of civil war.

These results were obtained by CH using a pooled logit model. In alternative specifications of their model (see appendix of Collier and Hoeffler 2000), they try rare events logit and random effects model, though perhaps the statistical analysis leaves some open questions regarding the potential endogeneity of some variables, selection effects between economic and political variables, time-dependence, and the non-independence of some observations (cross-sections). All these issues are addressed below in the context of the case study project.

The fact that the CH model can be tested statistically implies that we need not "test" the model using the case studies. Rather, we use the case studies to better understand the ways in which the model "fits" different cases. An example of how the case studies can be used to "test" the model's fit is given in Appendix 2, where I apply the CH model to explain civil war in Bosnia and war avoidance in Macedonia in the early 1990s. The table in Appendix 2 is organized along the set of variables in the core CH model. I describe the relationship between each variable and the expected outcome of the CH model and then compare the two cases along each of these variables and establish if the model makes consistent or inconsistent predictions in each case. That evaluation is based on summary statistics for these two cases as they compare to the sample mean and median. I also highlight alternative explanations of war and war-avoidance that the CH model does not consider. Most case studies offer such alternative explanations, but they are not always based on well-developed counterfactual reasoning (see previous section). Thus, we must select among plausible alternative explanations, code these for the entire set of countries in the CH dataset, and test their fit to the data using statistical analyses.[35]

To discuss mechanisms and data issues, I present illustrative examples from the cases. This at times gives the paper the flavor of a collection of anecdotes. But the paper is more than that and we must by necessity limit ourselves to anecdotal discussion of various cases to make the discussion tractable. The appendices serve the purpose of presenting a more systematic exposition of how the different variables fit the model and, by comparing alternative explanations for war across all cases listed in Appendix 2 we can get a better sense of the frequency with which these explanations are invoked. More frequently cited explanations deserve closer scrutiny and it is these explanations that I focus on in revising the theory of civil war. Thus, the mechanisms and hypotheses discussed in this paper seem to apply to several cases and are potentially generalizable.

I begin my synthesis of the main lessons from the case study project below, starting with data refinements and their implications for testing the validity of the CH model of war onset.

4. DATA MEASUREMENT, VARIABLE OPERATIONALIZATION AND THEORY REFINEMENT

One of the principle functions of the case study project is to identify data quality problems with the large-N quantitative analysis of civil war. Quantitative tests of the CH model rely on "proxy" variables since measuring the theoretically significant variables directly is often difficult if not impossible. Case studies can tell us if the proxy variables that are included in the CH model actually measure what we think that they are measuring.[36] They suggest better ways to code explanatory variables, such as ethnic

[35] Obviously, these tests cannot be as detailed as the case study analysis, which brings us back to some of the points raised above about the shortcomings of statistical research in the study of civil wars. But this approach should, at a minimum, improve the fit of statistical models of civil war to the data and lead to more accurate point predictions from statistical models.

[36] "Quantitative indixes [sic] that do not relate closely to the concepts or events that we purport to measure can lead to serious measurement error and problems for causal inference" (KKV 1994, 44).

fragmentation or democracy.[37] They can also help us code variables that are not coded in any large-N datasets, such as the size of rebel forces and the organization of rebel movements (see Sambanis 2002c). By helping us reduce measurement error, case studies can help reduce the uncertainty associated with point estimates in quantitative studies of civil war.

Have We Coded All the Wars? And Can We Predict their Occurrence?

We should begin by pointing out that large discrepancies exist in the coding of war onset and termination in various datasets (Sambanis 2002b).[38] Case studies in our project can help us revise the list of wars in the CH dataset as they identify events that should have been classified as civil wars, but were in fact excluded from most datasets. Accurate coding of the dependent variable should improve the accuracy of the model's predictions.

The CH model makes some correct predictions of high-risk periods for several countries (e.g. the DRC/Zaire in 1995-99 has the highest predicted risk of war onset in their data). The model also seems to correctly predict the non-occurrence of war in some countries (e.g. Kenya—though by some definitions, Kenya has had a civil war in 1964 and in 1991-93). In looking more closely at some of these predictions in the context of specific cases, we can explore how measurement problems with the dependent variable can lead the CH model to make poor predictions. Table 1 presents the CH model's predictions for the cases included in our project.

A first problem is that the CH model sometimes codes no war in country-years where there was in fact a war.[39] A high prediction of war during those country-years may be accurate, but if the dataset had been properly coded and if the war was a continuation of war during the previous period, then CH might not have been able to make that prediction since they drop ongoing years of war from their analysis of war onset.

Second, we frequently run into the problem that a country that is coded as being "at peace" has in fact had significant political violence, but that violence narrowly misses an arbitrary "civil war" threshold.[40] Thus, in those cases, the CH model seems to be making an inaccurate prediction, when in fact it is correctly predicting the occurrence of political violence. The CH model—and all other quantitative studies of civil war to date (e.g. Fearon and Laitin 2003)—assume that civil wars are qualitatively different from other forms of political violence, such as genocide. But this has not been established empirically (see Sambanis 2003). I will return to this point later in this paper, when I discuss linkages across various forms of violence. In ongoing theoretical work, I propose moving away from models of civil war to models of political violence, where the focus is to explain the precise form that violence will take (e.g. secessionist or revolutionary war, coup or politicide, etc.).

Third, the flipside of the problem above is that several cases of civil war in the CH dataset are in fact not necessarily civil wars. For example, both the death toll in Romania in 1989 and the level of organization of the opposition are questionable and the riots and protests surrounding the fall of the Communist regime seem to fall short of most definitions of civil war (see Sambanis 2002b). Several other cases of war in the CH dataset are coded in countries that were not yet sovereign states, like Angola before 1975 or Guinea Bissau in the 1970s. These are better characterized as extra-state wars or civil wars in the territory of the colonial metropole.

---

[37] These measurement errors do not introduce bias in the analysis, but they may decrease the efficiency of the results (KKV 1994, 155). "As with nonsystematic error in the dependent variable, random error in the explanatory variable can also make estimates of causal effects uncertain and inefficient" (KKV 1994, 163).

[38] For example, Fearon's (2001) and Licklider's (1995) coding of civil wars correlates only up to the range of 50-56% with civil war dates included in the Correlates of War 2 project (Sarkees and Singer 1997).

[39] The unit of observation in the CH dataset is the country-five-year-period. Other datasets (e.g. Sambanis 2001; Fearon and Laitin 2003) use the country-year as their unit of observation.

[40] CH use the Singer and Small (1994) definition of civil war.

Table 1: Actual and Predicted Civil Wars in the Case Studies[41]

Country and Five-Year Period		CH coded war onset	Do Case studies code a war onset?	CH war prediction (education)	CH war prediction (GDP)
Algeria	1960	1	1	.	.
Algeria	1965	0	0	53.12%	45.48%
Algeria	1970	0	0	33.70%	29.11%
Algeria	1975	0	0	28.11%	26.00%
Algeria	1980	0	0	21.94%	26.49%
Algeria	1985	0	0	8.38%	13.41%
Algeria	1990	1	1	8.84%	17.13%
Algeria	1995	.	0	.	.
Azerbaijan	1990	1	1	.	.
Azerbaijan	1995	0	0	.	.
Bosnia	1990	1	1	.	.
Bosnia	1995		0	.	.
Burundi	1960	0	0	.	.
Burundi	1965	0	**1**	29.47%	36.24%
Burundi	1970	1	1	16.59%	25.47%
Burundi	1975	0	0	13.63%	20.50%
Burundi	1980	0	0	17.18%	22.35%
Burundi	1985	1	1	19.71%	23.18%
Burundi	1990	1	1	22.25%	26.29%
Burundi	1995		0	.	.
Colombia	1960		**1**	.	.
Colombia	1965	0	0	14.78%	13.59%
Colombia	1970	0	0	10.26%	9.75%
Colombia	1975	0	0	5.87%	7.09%
Colombia	1980	1	1	5.26%	5.49%
Colombia	1985	.	0	.	.
Colombia	1990	.	0	.	.
Colombia	1995	.	0	.	.
El Salvador	1960	0	0	.	.
El Salvador	1965	0	0	11.63%	9.45%
El Salvador	1970	0	0	9.69%	8.00%
El Salvador	1975	1	1	11.33%	7.89%
El Salvador	1980	.	0	.	.
El Salvador	1985	.	0	.	.
El Salvador	1990	.	0	.	.
El Salvador	1995	0	0	6.98%	6.41%
Georgia	1990	1	**2**	.	.
Georgia	1995	0	0	.	.
Indonesia	1960	.	0	.	.
Indonesia	1965	0	0	29.54%	33.11%
Indonesia	1970	0	0	17.24%	19.40%
Indonesia	1975	1	**0**	25.33%	24.79%
Indonesia	1980	.	0	.	.

[41] Column 1 includes the country and five-year period corresponding to observations in the CH dataset. Only countries that are included in the case study project are listed here. Column 2 displays the number of war onsets coded by CH in their dataset. Missing cells represent missing observations in CH (note that they drop observations of ongoing war). Column 3 codes the number of civil war onsets according to the case studies. Differences from CH are in bold. The last two columns give the predicted probability of civil war based on the core CH model, first with education levels and then with GDP per capita as proxy for the opportunity cost hypothesis. The average estimated probability of civil war onset in any five-year period is 6%.

Indonesia	1985	0	0	25.32%	23.30%
Indonesia	1990	0	**1**	17.48%	16.04%
Indonesia	1995	0	**1**	8.04%	6.80%
Ivory Coast	1965	0	0	7.32%	5.58%
Ivory Coast	1970	0	0	7.66%	5.29%
Ivory Coast	1975	0	0	6.00%	3.89%
Ivory Coast	1980	0	0	5.94%	4.56%
Ivory Coast	1985	0	0	7.33%	6.53%
Ivory Coast	1990	0	0	7.61%	7.98%
Ivory Coast	1995	0	0	1.12%	2.50%
Jamaica	1960	0	0	.	.
Jamaica	1965	0	0	1.41%	2.91%
Jamaica	1970	0	0	1.22%	1.66%
Jamaica	1975	0	0	1.49%	2.10%
Jamaica	1980	0	0	2.01%	4.10%
Jamaica	1985	0	0	1.41%	2.56%
Jamaica	1990	0	0	0.38%	0.77%
Jamaica	1995	0	0	0.51%	1.04%
Kenya	1960	0	0	.	.
Kenya	1965	0	0	8.62%	12.08%
Kenya	1970	0	0	4.81%	8.36%
Kenya	1975	0	0	1.80%	2.81%
Kenya	1980	0	0	3.61%	5.43%
Kenya	1985	0	0	4.07%	6.75%
Kenya	1990	0	0	1.01%	1.71%
Kenya	1995	0	0	2.70%	3.87%
Lebanon	1960	0	0	.	.
Lebanon	1965	0	0	.	.
Lebanon	1970	0	0	.	.
Lebanon	1975	1	1	.	.
Lebanon	1980	.	0	.	.
Lebanon	1985	.	0	.	.
Lebanon	1990	.	0	.	.
Lebanon	1995	0	0	.	.
Macedonia	1990	.	0	.	.
Macedonia	1995	.	0	.	.
Mali	1960	0	0	.	.
Mali	1965	0	0	3.82%	8.96%
Mali	1970	0	0	3.20%	8.45%
Mali	1975	0	0	0.87%	2.64%
Mali	1980	0	0	2.59%	6.10%
Mali	1985	0	0	2.29%	4.69%
Mali	1990	0	**1**	3.96%	5.99%
Mali	1995	0	0	2.11%	4.42%
Mozambique	1975	1	1	39.62%	23.54%
Mozambique	1980	.	0	.	.
Mozambique	1985	.	0	.	.
Mozambique	1990	.	0	.	.
Mozambique	1995	0	0	28.77%	23.56%
Nigeria	1960	0	0	.	.
Nigeria	1965	1	1	17.10%	12.51%
Nigeria	1970	0	0	23.79%	15.21%
Nigeria	1975	0	0	30.04%	14.33%

Nigeria	1980	1	1	42.02%	25.33%
Nigeria	1985	0	0	51.21%	46.48%
Nigeria	1990	0	0	60.64%	54.09%
Nigeria	1995	0	0	50.47%	50.04%
Senegal	1965	0	0	4.63%	6.70%
Senegal	1970	0	0	4.30%	6.57%
Senegal	1975	0	0	6.44%	9.43%
Senegal	1980	0	0	2.86%	4.32%
Senegal	1985	0	**1**	4.06%	6.19%
Senegal	1990	0	0	1.45%	2.47%
Senegal	1995	0	0	0.64%	1.12%
Sierra Leone	1960	0	0	.	.
Sierra Leone	1965	0	0	.	.
Sierra Leone	1970	0	0	0.57%	0.62%
Sierra Leone	1975	0	0	1.33%	1.62%
Sierra Leone	1980	0	0	0.57%	0.87%
Sierra Leone	1985	0	0	0.81%	1.32%
Sierra Leone	1990	1	1	0.68%	1.26%
Sierra Leone	1995	1	1	.	29.91%
Sudan	1960	1	1	.	.
Sudan	1965	.	0	.	.
Sudan	1970	.	0	.	.
Sudan	1975	0	0	24.27%	25.33%
Sudan	1980	1	1	15.42%	15.63%
Sudan	1985	.	0	.	.
Sudan	1990	.	0	.	.
Sudan	1995	.	0	.	.
UK – N. Ire.	1960	0	0	.	.
UK – N. Ire.	1965	0	0	3.38%	2.08%
UK – N. Ire.	1970	0	**1**	2.51%	1.69%
UK – N. Ire.	1975	0	0	1.83%	1.43%
UK – N. Ire.	1980	0	0	2.16%	1.48%
UK – N. Ire.	1985	0	0	2.15%	1.32%
UK – N. Ire.	1990	0	0	0.84%	0.49%
UK – N. Ire.	1995	0	0	0.27%	0.50%
Russia/USSR	1960	0	0	.	.
Russia/USSR	1965	0	0	.	2.37%
Russia/USSR	1970	0	0	.	1.32%
Russia/USSR	1975	0	0	.	1.21%
Russia/USSR	1980	0	0	0.92%	1.50%
Russia/USSR	1985	0	0	0.77%	1.12%
Russia/USSR	1990	1	1	.	.
Russia/USSR	1995	1	1	.	.
Zaire/DRC	1960	1	1	.	.
Zaire/DRC	1965	.	**1**	.	.
Zaire/DRC	1970	0	0	11.98%	13.15%
Zaire/DRC	1975	0	**1**	7.62%	11.07%
Zaire/DRC	1980	0	0	11.63%	24.70%
Zaire/DRC	1985	0	0	9.03%	19.69%
Zaire/DRC	1990	1	**0**	11.34%	24.77%
Zaire/DRC	1995	1	1	46.64%	77.18%

The question of classifying civil wars is thorny. Indonesia provides a good example: whereas most datasets code several civil wars in that country, Ross (2002) writes that Indonesia has only had one civil war—in Aceh in 1990-91 and 1999—and that war is in fact not coded in the CH dataset. Ross argues that the wars coded in Indonesia by CH do not meet the CH definitional criteria, as they are either extra-state wars (e.g. in East Timor) or massacres (the violence surrounding the coups and pogroms of the 1960s).[42] The point regarding omitted cases of civil war from the CH dataset is also raised by the authors of the Burundi case study (Ngaruko and Nkurunziza 2002), who identify a war in 1965 that is omitted by CH. Similarly, Mali and Senegal (Humphreys 2002) and the UK/Northern Ireland (Woodwell 2002) have all had civil wars that are not coded in the CH dataset. The case studies force the analyst to take a closer look at a given socio-political environment and can allow us to correct coding errors in the large-N datasets. They can help us identify that start and end-dates of civil wars more accurately and can provide better estimates of deaths and displacements and other hard-to-code variables, such as the spatial distribution of deaths (Weinstein and Francisco 2002) or the economic costs of the war (Zurcher, Kohler, and Baev 2002).

These coding changes, however, do not seem to have much of an impact on the significance of parameter estimates in a simple model of civil war onset estimated using all these different datasets Sambanis (2002b). This reveals that models currently used to predict war onset are poorly designed to do so as they do not include variables with high variability over time. Thus, such models can only predict long-lasting country proclivities to war that are due to structural characteristics. What role can a variable such as ELF —the widely used level of ethnoliguistic fractionalization—play in predicting the timing of civil war onset, since it is measured as a constant for each country? What the CH (and related Fearon-Laitin) model picks up is mostly cross-sectional variation rather than time-variance in estimates of war risk.

The lack of many time-sensitive variables in the CH model might lead to strange trends in predicted probabilities as a result of the overwhelming effect of the "peace duration" variable, which does vary over the period. The longer a country has been at peace, the lower the estimated risk of new war onset. But in some cases, this leads to poor predictions of the change in the estimated risk of civil war. In the case of Algeria, for example, the predicted probability of civil war from the CH model declines steadily from 45% in 1965 to 30% in 1975, to 17% in 1990 (see the last column of Table 1). While at 17% the probability estimate is still three times as high as the sample average, we see a time trend that describes a declining risk in Algeria over time and the probability estimate for the period 1990-95, when a war actually did break out, was much lower than that in previous years.

Another good illustration of the CH model's failure to predict over-time variation in war risk is DRC. The fact that several wars are not coded in the CH dataset (e.g. the Kisangani mutiny of 1967 and Shabba wars of 1977-78) can only decrease the efficiency of the model's point estimates. CH predict civil war probabilities for the Congo that range from 8% for 1975-79 to 77% for 1995-99 (Ndikumana and Emizet 2002, 33). Even at 8% the estimated risk of civil war is still higher than the mean for the sample. The DRC has lower income, lower growth, and lower peace duration than the sample mean growth (except for 1970-74), and lower peace duration; while it has higher dependence on natural resources, higher ethnic fractionalization, and a larger and more highly dispersed population. The drastic drop in GDP and growth rate in the 1990s can explain the large increase in the CH risk estimates (Ndikumana and Emizet 2002, 34). Even in this case, where economic variables fluctuated widely over the 40-year period, the estimated risk of civil war does not rise by much over certain five-year periods. According to Ndikumana and Emizet (2002, 36):

> "Assuming that income and its growth rate were the driving forces in the trend of the risk of war, then the model should predict an even higher jump in the probability of war in 1980-84 compared

[42] In most datasets, the East Timor conflict is coded as a civil war because significant fighting took place after the Indonesian government took control of East Timor.

> to 1975-79. Between these periods, real per capita GDP dropped by 25% from $637 to $476 and its growth rate worsened from an average of -1.48% per annum to -5.83%. Based on income and its growth rate, the predicted probability of war should increase more from 1975-79 to 1980-84 than from 1990-94 to 1995-99. More importantly, there was no new war in 1980-84 whereas there were two wars in 1975-79 (Shaba I and II). Therefore, the model may be misleading with respect to the trend of the risk of war over time, especially in the 1980s. The model may also be misleading when it predicts a decline in the probability of war in 1975-79 compared to 1970-74. First, there was no war between 1970 and 1974, but two wars occurred between 1975 and 1979. Second, income and its growth rate were lower in the latter period, which, according to the Collier-Hoeffler model, meant a higher risk of war."

In the case of Nigeria, the model runs into similar problems in making over-time predictions of civil war risk. We have both false positive and false negative predictions in this case. The model predicts a high risk of civil war in the 1990s, when a war did not occur. The economy was deteriorating, oil production was declining, while expanding the oil pipeline allowed even more regions to claim a piece of the resources. But, while the model is technically incorrect here, it is capturing something important given that many instances of inter-ethnic fighting caused thousands of deaths in that period (Zinn 2002). What makes these events of violence different from civil wars (at least as far as our coding rules are concerned) is the non-involvement of the state. According to Zinn (2002, 20) "in only 12 (20%) [of these conflicts] was the government a principal combatant and of these, only 4 involved a militarily organized opposition group, and none resulted in at least 1,000 deaths." Thus, the false positive prediction is partially due to the way we classify events of political violence as civil wars. Zinn (2002) identifies up to 60 violent conflicts in Nigeria from 1985-89, during a time when the country was coded as being "at peace" in the CH dataset. Our narrow coding of political violence does not allow us to capture the effect of ethnic violence and turmoil on the country's economic conditions that, in turn, feed into the CH model's predictions of a high risk of civil war in Nigeria in the 1990s. More to the point, one might ask what is the difference between several thousand people killed in a civil war as opposed to people killed in ethnic rioting? We have accepted the dominant Singer and Small (1994) definition of civil war too readily and now we are running into analytical problems generated by that definition. The CH model, like most other quantitative studies of civil war, is silent on this substantive problem, to which I return in a later section.

In evaluating the CH model's classification success, it may be useful to translate a predicted probability of success into a prediction of war when the prediction is above the population mean rather than above the typical cut-off point of 50%. Very few predictions are above 50% while maintaining statistical significance. In Burundi, the CH model's predicted war probability is 0.36 in 1965 and 0.26 in 1990. So the model predicts higher risk in 1965 than for 1990-94, the period which saw the greatest civil war in Burundi's history. But the predicted probability is much higher than the population average (0.06), so in a sense it correctly classifies Burundi. In 1965, the CH model is correct but it doesn't know it: CH have not coded a war in 1965, so they might mistake their prediction for a false positive. But, as Ngaruko and Nkurunziza (2002) tell us, there was actually a war in Burundi in 1965.

Economic Variables: GDP, Growth, Education

What makes the CH model stand out from many other models of civil war is its bold prediction that what causes civil war to break out is not political repression or legitimate grievance, but rather a confluence of weak economic indicators. In this section, I discuss how the case studies help us refine—and at times revise—the CH model's arguments about the impact of economic variables on civil war risk.

The key measures of the opportunity cost argument developed in the CH 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 of the CH model, many countries in our project have had low and declining per capita income in the years preceding the start of the war; they have 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 Nigeria, recession in the late 1970s caused unemployment to double to more than 20% before the onset of the Maitatsine rebellion. 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 and unemployment soared 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 CH model's opportunity cost argument.

However, there are several possible interpretations of GDP per capita and a prominent one (Fearon and Laitin 2003) is that it is a proxy for state strength.[43] If the proxy variable can be interpreted in a number of ways, then it can also be used to test several different hypotheses and its usefulness in trying to distinguish between theoretical explanations of war is very limited. Therefore, it is unclear how to interpret the negative correlation between GDP per capita and civil war. The argument could suggest that weak states are unable to prevent insurgency from escalating into civil war (Fearon and Laitin 2003). Or, it could be the case that low GDP per capita implies low opportunity cost of rebellion (CH model). One indirect way of distinguishing between these rival interpretations is to look at how GDP was measured in the two papers. The Purchasing Power Parity (PPP)-adjusted measure of GDP used by CH is more consistent with their opportunity cost argument, while the constant-dollar GDP figures used by Fearon and Laitin are more consistent with their state strength argument, since they describe the overall size of the economy.

Given the lack of clarity about what exactly GDP measures, one wonders why these studies did not use more direct measures of opportunity cost, such as unemployment, especially among young men. 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 pre-war Yugoslavia, while income per capita was two or three times the average for civil war countries in the CH 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 CH model.

Turning to the education variables, data on schooling seems to broadly support the CH 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 CH 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 the 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.[44] 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.

[43] This is one of the main differences between the Collier-Hoeffler (2000) and Fearon and Laitin (2003) models—a difference of how to interpret the role of per capita GDP. In Collier and Hoeffler 1998, the taxable base, which is proxied by GDP, is also used as a measure of state strength.

[44] 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.

Again, what is truly missing here is an explanation of *how* schooling influences civil war risk. The CH interpretation is that schooling increases the opportunity costs of violence because it affords people the opportunity to earn a living from regular economic activity. While this seems like a reasonable argument, it does not explain the Caucasian or Lebanese cases in our project, or other cases of civil war in countries with high levels of schooling (Cyprus, Greece). What the schooling argument is missing 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. It is not surprising that this mechanism is entirely absent from CH's thinking about schooling, since nationalism play 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 of our cases seem to be perfect examples of the CH argument regarding the negative effects of declining growth. In Sierra Leone, economic growth was negative before the start of the war in 1991 (Davies and Fofana 2002). Yugoslavia's growth rate declined 15-20% from 1988-92, fueling social unrest (Kalyvas and Sambanis 2003). Economic growth had negative rates of growth in the five years before a war started in Senegal, Mali, Bosnia, Azerbaijan, and other countries in our sample.

However, economic growth seems to have a more complicated relationship to civil war than the one outlined in the CH model. While Collier and Hoeffler model a linear relationship between lower growth and more civil war, there are undeniable dynamic effects between these variables. First, something that all quantitative studies miss entirely is that low-level violence that typically precedes war reduces both income and growth, 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 which is not properly modeled in the CH paper. Third, in some cases, rapid growth may actually cause civil wars. In Lebanon, growth averaged 7.5% for the 1950s, 6-6.6% for the 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 Acehenese 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 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.

Another limitation of the CH (and Fearon-Laitin) models is that they do not model explicitly 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.[45] 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

[45] 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.

in 1999 (See Zurcher, Kohler, and Baev 2002). In 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 1995-99 down from $548 for the period from 1965-69).[46] 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).[47] If at least some of these declines were due to civil war, then we have a feedback effect that is not properly modeled in the CH paper.

It is interesting to consider what the CH theory would predict as a result of these drastic changes to underlying economic conditions. 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.[48] 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 CH 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 CH model, as the authors drop ongoing periods of war, ignoring the feedback effects mentioned above. If we instead coded the dependent variable (war onset) as "0" for all years of ongoing war (this is the Fearon and Laitin 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. An interesting twist is introduced by Zurcher, Kohler, and Baev (2002) who argue that depleted national income may actually discourage further war, as the available "loot" shrinks, making war unprofitable. This logic could apply to countries with no natural resources and no external financing for the war and complicates the logic of the CH model if we try to consider how an ongoing war in the same country affects the probability of a second war onset.

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 3,281 deaths (Hayes and McAllister 2001) and dozens of thousands of injured (Smith 1999).[49] 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.[50] A larger insurgency would have triggered a massive response from the British government.

What this explanation probably leaves out is the role of the 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 cause negative reactions from civil society institutions. 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. In other

[46] Ndikumana and Emizet (2002)
[47] Ngaruko and Nkurunziza (2002, 5).
[48] CH 2000 find that the risk of war if 50% greater in the period immediately after the previous war ends as compared to other periods. Doyle and Sambanis (2003) confirm that relationship using a Cox proportional hazard model of peace duration, using a different dataset.
[49] 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.
[50] Woodwell (2002, 16-17) also notes the deterrent effect of the Royal Ulster Constabulary's strength of 13,500 members.

words, the state strength argument here becomes 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, since there we have 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.[51] 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.

On the whole, our cases support the CH arguments about the negative association of economic development and civil war onset, but they also help us refine these arguments. These refinements are much more extensive with respect to another economic variable in the CH model: dependence on natural resources and primary commodity exports.

Natural Resources

The resource predation hypothesis developed in the CH model is central to the argument. Rebels need to loot resources to finance their rebellion. The argument is plausible, but it runs into several problems. First, the CH model and empirical evidence do not let us distinguish between looting as a motive for rebellion and looting as a means to sustain rebellion. Second, empirical tests of the resource predation hypothesis are compromised by the fact that CH measure resource dependence as the ratio of primary commodity exports over GDP. Using this operationalization of the variable, CH find that the risk of civil war onset is maximized when the share of primary commodity exports to GDP is around 25-32%.

While this is a useful result, it is obvious that the proxy variable does not measure easily lootable resources since it includes agricultural commodities that are not easy to loot (unless the rebels gain control of the state and can control revenues from export trade).[52] A serious problem for the CH resource predation argument is uncovered through the case studies. We often find civil war countries with high levels of natural resource dependence, but the civil wars in those countries were unrelated to these resources. This spurious correlation can lead to false inferences about the resource-conflict link. For example, the Maitatsine rebellion in Nigeria in the 1980s took place in a heavily oil-dependent country, but the rebellion was not financed by natural resource rents. The rebels were recruited through ideological indoctrination and Koranic teaching. They were drawn among the ranks of the homeless, refugees and unemployed, and used primitive weapons. Their limited finances came from hordes of beggars, small-scale theft and profits from sales of charms and medicines (Zinn 2002, 13).[53] Like Nigeria, in Senegal also the CH model would appear to be making a correct prediction if it had predicted a high risk of civil war, since Senegal is also dependent on primary commodity exports.[54] However, a closer look at this case by Humphreys and Mohamed (2002) tells us that natural resource extraction and looting were irrelevant for the *onset* of the war, which was initially financed by subscriptions. Rather, exploitation of Casamance's natural wealth of cannabis and cashew nuts, helped finance the duration of

[51] Again, I should note that several datasets (e.g. Regan 1996; Doyle and Sambanis 2003) code a civil war in Kenya in 1991-93 due to the extensive involvement of the state in organizing and financing the violence.

[52] Burundi's economy, for example, is agricultural with high values of primary commodity exports. According to (Ngaruko and Nkurunziza 2002, 7), 56% of the economy and 92% of the labor force are in agriculture. The export sector is 6.5% of GDP with heavy dependence on coffee exports (80% of total exports).

[53] This war in the 1990s is usually omitted from many datasets, but it meets the definitional criteria and ongoing violence from 1980-84 caused 5,646 deaths, according to Zinn (2002).

[54] Actually, the war is not coded in the CH dataset, but if it had been coded, the model would have been consistent with an observation of war onset.

the war for the rebels, while the army extorted timber from the region. This is consistent with Collier's theory of war duration, but not his theory of war onset.

A more targeted test of the resource predation hypothesis would disaggregate the components of the primary commodity exports and focus on easily lootable resources. In general, primary commodity exports do not appear to have influenced decision-making about civil war in our case studies, though many case studies identified a link between war and oil, diamonds, or other easily lootable commodity. Our case study authors typically disaggregated the primary commodity index and focused on "usual suspects"—oil, diamonds, timber, gold. This allowed them to find many examples of civil wars that were intrinsically linked to conflicts over resources.

DRC is perhaps first on that list. According to Ndikumana and Emizet (2002), almost all five of the Congolese rebellions have originated in the resource-rich regions of Katanga, Kivu, and Kasai (one exception being the mineral-rich Orientale province). Zaire (DRC) has 50% of the world's cobalt production, 30% of the world diamond production, 20% of copper production; and sizable deposits of gold and tin and most of this is concentrated in the Eastern provinces. Mineral exports equal 25% of GDP (Ndikumana and Emizet 2002). However, the coding of the natural resource proxy variable in the CH model does not allow us to fully capture the relationship between conflict potential and regionally concentrated natural resources. If a region has all or most of the country's resources, the logic of the CH model would predict greater risk of war in that region as compared to the rest of the country. And this would still be the case even if the country as a whole was not overly dependent on natural resources.

By contrast, if a region is bereft of natural resources but the country as a whole has plenty, the logic of the CH model should not predict violence in the less rich region. However, coding will again prevent us from assessing this hypothesis as long as the unit of observation is the country. A good example of this is offered by the war in Azerbaijan, a country with a dependence on exports of oil and natural gas, amounting to 23% of GDP in 1999 and 91% of total exports in 2001 (Zurcher, Kohler, and Baev 2002, 63). On the surface, it seems that the CH model would be correct to predict high risk of war in Azerbaijan. But the war actually occurred in the Nagorno-Karabakh region—now a *de facto* Republic (NKR)—which is bereft of natural resources and has a small economy based on agriculture and food processing. NKR had fewer than 200,000 people in 1989 and covered less than 6% of Azerbaijan's territory. The conflict there, between the Azeri minority and irredentist Armenian majority was entirely unrelated to oil (Zurcher, Kohler, and Baev 2002, 63), but this could not be established on the basis of econometric analysis of the CH dataset. Similarly, in Mali, we have a war in a country whose natural resource-dependence is at the average level for all civil war countries, but natural resources had nothing to do with the war. Gold and diamonds are located in parts of Mali that were unaffected by the war and at no time did the rebels seek access to or revenue from the mines (Humphreys and Mohamed 2002).

A question that the literature has grappled with is if resource predation is a motive for war or just a means to sustain war, or both (Sambanis 2002). This question is not answered by the CH model and the case studies complicate things further, as they establish looting as a prevalent form of funding rebellions both in resource-rich and resource-poor countries. In some of our case studies, natural resources are clearly unimportant as sources of rebel financing or national income. But in these cases, as well, we usually see looting of other assets to finance the insurgency, as the cases of Bosnia, Lebanon, Burundi,[55] Georgia, and Mozambique demonstrate.[56] In all of these cases, rebel organizations engaged in looting behavior that was similar to the looting of natural resources by rebel organizations in resource-rich countries. The targets of looting were different in resource-poor countries—small theft, looting houses and small businesses were usually observed. Car-jackings and extortion were used in Mali and kidnappings and

[55] Burundi has a high ratio of primary commodity exports to GDP due to coffee exports. None of the analyses that I have read indicated the control of coffee production is a motive for political violence in Burundi.

[56] All of these countries have had civil wars while having much lower dependence on primary commodity exports than the population mean.

ransom in Colombia, to finance rebellion. In most cases, looting is a mechanism used to sustain rebellion and it is not necessarily a motive for rebellion. It does take a closer look at each case to determine the role of predatory behavior in shaping motives for insurgency and we cannot ascertain through econometric work if resource predation is a motive for political violence or a mechanism to sustain insurgency.

While resource predation could be a motive for rebellion, resources can obviously not be exploited unless the rebels have gained some territorial control. One would therefore expect that resource predation would be especially important for sustaining rebel organizations once the violence has started. Interestingly, Collier, Hoeffler, and Soderbom (2001) find that natural resource dependence does not influence civil war duration, which seems to contradict the theory of loot-supported financing of rebel organizations. This result seems at odds with most of the studies of countries in our project with significant natural resources. In Indonesia and Nigeria—two countries with sizable oil and natural gas reserves, natural resources provided motives for rebellion and could explain the state's reluctance to allow the country's oil-rich regions to secede (Ross 2002; Zinn 2002). What emerges as an important variable in this equation is the state's response to demands by groups in peripheral regions who want more direct control of natural resources in their regions. In cases where the state is accommodative, the conflict may not escalate to war (more on escalation dynamics later). But the state's reaction is likely to be overwhelmingly negative when a rich region wants to secede and take control of the country's resources, especially if those resources form a large part of the central government's revenues (this argument is developed further in a theory of secession by Milanovic and Sambanis 2003). Thus, government response may be a mechanism that can explain the link between war and resources that is not modeled by CH.

Four other data and measurement problems confound the interpretation of results from the CH statistical analysis. First, in some cases, a country may be coded in the CH dataset as having low levels of primary commodity exports, but resource-predation may still be a motive for war. This is the case of Nigeria in 1960 (with primary commodity exports at 9% of GDP). Exploitation of oil deposits and oil exports was a key motive for the Biafran rebellion of 1967. According to Zinn (2002, 10), Ojukwu, the governor of the Eastern region, "demanded that oil revenue be paid to the regional treasury" and demands for independence started to grow as soon as oil reserves were discovered.[57] Second, we frequently come across cases where no war has been coded by CH in a country with high levels of primary commodity exports. This has the effect of underestimating the effect of resource dependence on civil war risk. An example is Nigeria in the 1980s (no war coded), or Kenya, which has high levels of primary commodity exports and is coded as a country in peace, despite the fact that a history of agricultural land disputes have turned violent throughout its history and may have reached the threshold of civil war in the 1990s. Third, large fluctuations in a country's ratio of primary commodity exports over GDP can be due to international economic conditions and price shocks. A country does not really become more or less resource-rich overnight, but a negative price shock that affects some export commodities might make the country less dependent on these commodities than others whose prices are not affected. If this influences the estimated relationship (the coefficients) between natural resources and civil war onset, then the model should probably control for trade flows, which would better capture the effects of global economic conditions and financial shocks on commodity trade.[58] Finally, dependence on certain commodities, such as oil, may also have an effect on regime type. A political variant of the "Dutch disease" has been noticed in countries that are major oil exporters, as they are also heavily autocratic (Ross 2000; Wantchekon and Neeman 2000).[59] Beyond the Dutch disease effect, heavy reliance on oil has led to predatory government and oftentimes to a dysfunctional or collapsed state (as in Angola). This means that more attention needs to be paid on the mechanisms through which resource dependence influences war risk. One of the

[57] This may explain the CH model's false negative prediction for the Biafran war. Nigeria's primary commodity export share of GDP increased to 38% in 1990-94.
[58] Esty et al. (1995) include a trade variable in their models of state failure. So does Gleditsch (2003).
[59] Norway is the exception, perhaps because it had long-established democratic institutions before it made its oil discoveries.

mechanisms may be that oil revenues can support heavily autocratic regimes who can then more readily repress rebellion. But another mechanism, working against the first, could be that oil dependence, through their contribution to dysfunctional and repressive governance, increase war risk by increasing political grievances.

These difficulties suggest that better measures of natural resource dependence must be used in the CH model and the interactions between these measures and other variables of the model (e.g. regime type, level of development, trade) should be more fully explored.

Population

Population size is one of the most significant variables in the CH model with a large positive coefficient. The "theoretical" argument linking population to civil war is simple: the larger the population, the easier it should be to find a group to challenge the state, *ceteris paribus*.[60] This argument, however, clashes with the fact that many civil war countries are small: Burundi, Rwanda, Georgia, Azerbaijan, Cyprus, Lebanon, Mali, and Senegal all have small populations. Moreover, the argument seems to clash with some of the policy recommendations that flow from the CH model. The authors are reluctant to propose partition as a solution to secessionist war, although in principle a state divided into smaller parts would contain smaller ethnic majorities, reducing the risk of civil war.

It would be useful to consider ways to refine the theoretical links between population size and war. A potentially significant variable is population growth. It may be the case that changes to the demographic balance of antagonistic populations increase a country's propensity to war and that such pressures are typically found in very populous countries. But, in this case, the mechanism through which population size is linked to violence is ethnic mobilization of groups whose relative size decreases vis-à-vis other groups that are perceived as hostile. The absolute size of each group need not matter much in this case.

Related to population (but also income level), urbanization may be an important variable in tempering the prevalence of civil war. Several insurgency scholars have pointed out the difficulty in sustaining urban warfare.[61] Urbanization is of course a function of GDP per capita, but it also provides an additional explanation for the fact that most long civil wars tend to occur in peripheral areas of relatively sparsely populated countries (as predicted by the CH model). Thus, population density—not just population size—is important in identifying where a civil war might break out.

Diasporas

One of the key variables in the CH model, measuring international assistance to the organization of rebellion, is the size of the ethnic diaspora. The authors measure diaspora as the ratio of nationals of the war-affected country living in the U.S. over the national population living at home (with a statistical correction to account for the possible endogeneity of the size of the diaspora). The larger the diaspora, the greater the amount of assistance to the rebel group and the greater the risk of war. These results conform to public evidence on Irish-American support of the IRA, Canadian Tamil support of the LTTE, German Albanian support to the KLA and support of the Chechen fighters from Chechens living in Russia. Yet, in other wars we do not see much financial support from diasporas, as in the case of Burundi (Ngaruko and Nkurunziza 2002) or Georgia (Zurcher, Kohler, and Baev 2002).

---

[60] Fearon and Laitin (2003) have a similar argument: larger populations imply greater difficulty for the state to find and target insurgents.

[61] See, for example, Mao Tse-Tung's (1954) own writing (he was more than a "scholar" of insurgency). Kocher (2003) presents some quantitative evidence in support of this argument. Other cases, however, do not fit this mold. In the Algerian war in the 1990s, the regions with the highest level of violence have been those with the greatest population density and highest urbanization.

The case studies clearly suggest that we must broaden the definition of diaspora and refine its measurement. Several studies find that the presence of migrants in neighboring (not OCED) countries increases the risk of civil war onset, as these migrant communities are likely to offer support to their ethnic kin (e.g. Ross 2002). Diaspora communities can include refugees living in camps across the border (Ngaruko and Nkurunziza 2002). Having ethnic kin across the border is also likely to nurture irredentist and unification nationalisms, which fuel secessionist movements. Nationalism may be cultivated as the ideological support for state-building by a hegemonic group, as it seeks to assimilate ethnic groups in the periphery and expand its territorial control (an example was the Sinhalese internal migration to Tamil-controlled areas of Sri Lanka). Centralizing the governance of multicultural populations can increase grievances in the periphery. Early examples include England and France, where a dominant group culturally conquered others (Hechter 2001). Peripheral nationalism may develop as an ideology by a culturally distinctive territory that rejects incorporation into an expanding state or attempts to secede (Quebec, Scotland). Irredentist nationalism is an ideology attempting to extend the boundaries of a state by incorporating territories of an adjacent state occupied principally by co-nationals or co-ethnics (as in the case of Greek and Turkish Cypriots or Sudeten Germans). Unification nationalism may call for the merger of a politically divided but culturally homogeneous territory into one state, as in the case of 19th century Germany and Italy. If nationalists have support from the ethnic kin across the border, as was the case with Albanian support of the KLA during the Kosovo war in 1999, the chances for war onset and continuation increase.

Diasporas also operate indirectly, through their influence on national policies of neighboring states or the major powers. In the case of the Yugoslav conflict, the Croatians were the big winners of the diaspora influence, as their large lobby in Germany decidedly influenced the German government's decision to recognize Croatia's bid for independence in 1991-92 (Woodward 1995). Ethnic lobbies play a significant role in influencing the foreign policies of developed, multicultural states such as the US and UK. Moreover, diasporas do not constitute a unified entity that supports only a single party. Some parts of the diaspora may actually help the government. In Yugoslavia's wars, all three groups (Croats, Serbs, and Bosniacs) received diaspora support (Kalyvas and Sambanis 2003).

Finally, diasporas might take on the broader meaning of the term as shared transnational networks and cultural communities that can influence the pattern of civil war in any one country. In several wars of the 1990s, volunteers from Islamic militants joined Muslim groups that were fighting against the government in the Balkans and Central Asia.

Ethnicity and Social Fragmentation, and Polarization

One of the key findings of the CH model is that ethnic diversity does not increase the risk of civil war. This result stands opposed to widely-held assumptions about the causes of civil war in the popular press and scholarly literature. There are several cases that serve as good illustrations of the CH argument that social fractionalization impedes the organization of rebellion. According to Zinn, social fractionalization in Nigeria has contributed to the peace by increasing the costs of coordinating a rebellion against Northern dominance by the Ijaw and the Muslim Brotherhood in 1990s. Too much fractionalization among southern tribes "impeded the formation of a cohesive Southern rebel force" (Zinn 2002, 21). Competition between the Ibo and Yoruba was the most visible instance of coordination failure, as indicated by the results of the 1979 Presidential elections, in which northern candidates won more votes in Ibo states than the Yoruba candidate (Zinn 2002, 22). Zinn (2002, 22 ff) documents at least 10 episodes of violent conflict among minority groups between 1985-99. The fact that there were no Southerners at top echelons of the army implied that southern rebellion against Northern power was infeasible (Zinn 23-24).

Ethnic dominance raises the risk of civil war, as CH predict. It does so in several ways. Perhaps the most important way is that it raises the minority's fears of political domination and permanent exclusion. In Northern Ireland, we had a clear example of political and socio-economic dominance of Protestants vis-à-

vis Catholics—a case that clearly fits the CH dominance hypothesis. Land distribution at the time of British colonialism in Ireland favored Protestants and only 14% of the land was given to Catholics (Kelly 1988). There was heavy ethnic competition in Ireland's burgeoning industry (Woodwell 2002), creating similarly antagonistic ethnic relations as in other countries where we saw a rough identification of ethnic and professional affiliations (see Varshney 2002, on India). These policies in Northern Ireland created a sense of economic grievance. According to Woodwell (2002) Catholics had higher living standards in Northern Ireland than in the Republic of Ireland, yet it was their relative deprivation vis-à-vis the Protestants that generated grievance (cf. the main argument in Gurr 1970). Relative deprivation in this case implied an unemployment rate of 17.3% for Catholic men as compared to 6.6% for Protestant men, with an even greater disparity in high-paid jobs (Woodwell 2002). This example suggests that the mechanisms through which ethnic dominance influences the risk of civil war are economic and political, though cultural differences are at the core of economic and political inequities.

In two of our cases of war-avoidance, Macedonia and Ivory Coast, we also had ethnic dominance.[62] In both cases war was avoided by virtue of strong political institutions which, in the case of Macedonia, allowed a policy of cultural accommodation vis-à-vis the minority Albanian population, whereas in the Ivory Coast, supported a system of fiscal transfers to Northern regions that were not well-represented in government. Here, again, political institutions are an important intervening variable in mediating the effects of ethnic difference and ethnic competition.

In other cases, the statistical analysis of the relation between ethnic fractionalization and conflict is complicated because underlying an apparently very diverse and fractionalized society, we find deep polarization. In Mali, despite a high level of ethnic fractionalization (ELF is equal to 78/100), there is deep polarization between the Tuareg and Arabs in the North, each fearing being dominated by the other (Humphreys and Mohamed 2002). Similarly, in the Sudan, the Arab North has dominated political life and sought to limit the cultural autonomy of Christian and Animist South, setting the stage for a second civil war in the mid-1980s until 2002 (Elbadawi, Ali, and al-Battahani 2002).

What these cases clearly suggest is that conflict between two or more large ethnic groups can escalate into violence unless domestic political institutions are created to manage conflict peacefully. Democracy may be such an institution.

Political Institutions—Which Ones Matter, When and How?

Despite the potential usefulness of political institutions in managing ethnic conflict, the message from the CH model is that "grievances do not matter" and their empirical results show that democracy—which is thought to reduce political grievance—does not reduce the risk of civil war significantly. This negates several hypotheses about the positive effects of democratic institutions and other scholars' empirical evidence that support these hypotheses (Esty et al. 1995, Gurr 1993, 2000; Hegre et al. 2001). But the non-significance of democracy in the CH model is consistent with the results of other economic models of civil war, such as Fearon and Laitin (2003).

The impact of democratic institutions in the probability of civil war is still heavily debated in the literature. The case studies in our project suggest ways in which we may qualify the statement that "democracy does not matter" and modify the specification of the CH model to better gauge the effects of political institutions.

[62] The CH dataset and the case studies focused on the period up to the end of 1999. A civil war broke out in the Ivory Coast after the end of our period coverage.

Established and New Democracies

Gurr's (2000) distinction between *established democracies* and *new democracies* is an important one to understand in the context of our earlier discussion of unit heterogeneity. Newly established democratic institutions may not be credible or effective in resolving social conflicts. A useful example is provided by Ross (2002, 28) with reference to the recent democratic transition in Indonesia. Trying to respond to demands for greater autonomy in Aceh, the newly elected government implemented three major legislative changes in late 1999, passing decentralization laws no. 22, 25, 44, increasing Aceh's fiscal administrative and cultural autonomy. This accommodative stance should have reduced the risk of violent conflict according to theories of nationalism and ethnic conflict (e.g. Hechter 2001, Gurr 2000). However, Ross (2002) explains that these changes were non-credible, given the previous governments' revocation of Aceh's "special status" and the time-inconsistency of the Indonesian government's promises (i.e. it was easy to renege on promises of more autonomy). The government's lack of credibility was exacerbated by its inability to prevent attacks on civilians by the military. Moreover, the government relied too heavily on revenues from gas and oil exports, making its promises to grant Aceh fiscal autonomy less credible. A democratic government with a longer track record of equitable governance might have been more convincing. Government *credibility* and *legitimacy* are crucial components of democratic regimes that cannot easily be coded in quantitative studies. It is on the basis of these characteristics that the credibility of government reforms may be judged and it is also on that basis that we could differentiate between new (and unstable) democracies from old (and stable) ones.

Beyond the question of the stability of political institutions, we must also contend with the degree of institutional openness and social inclusion. While many states might be coded as democratic on the basis of Polity IV data, not all of these actually have truly open political institutions. Cyprus, for example, is coded by Polity IV as a perfect democracy in the years just before its two civil wars in 1964 (Polity IV = 8/10) and 1974 (Polity IV = 10/10). However, the Turkish Cypriots had walked out of the federal government established in 1960 and had established self-administered territories in Cyprus that were challenging the sovereignty of the Greek Cypriot government. The democratic institutions of the Cyprus Republic during that period essentially applied only to the Greek Cypriot territories. It is clear from even a cursory look across different polities that not all democracies are *liberal* democracies, which is what should matter in influencing the risk of civil war. In some countries, a relatively high level of democracy implies that the government will adopt truly accommodating policies toward its ethnic minorities, averting the escalation of ethnic violence, as in the case of Macedonia (Lund 2002). But in other countries, democracy is shallow and is measured simply in terms of the use of electoral mechanisms. In Lebanon we had electoral democracy that went along with severe sectarianism among the three major religious groups, which restricted the operation of the parliamentary system and the country was run like a familial system (Makdisi and Sadaka 2002).

In Nigeria, political institutions influenced the risk of civil war by their failure to control ethnic competition over resources in a weak federal state in a country with a weak sense of national identity. Colonial legacies played a part in intensifying ethno-regional conflict, as British rule had pitted the Northern and Southern protectorates against each other.[63] Just as in the case of Cyprus (Sambanis 1999), which inherited a consociational system from the British colonial rulers in 1960, the system endogenized ethnic conflict—it did not resolve it. Upon independence, a British-style parliamentary democracy was created in Nigeria, with three semi-autonomous regions (North, East, West). Increasing fiscal federalism created, on paper, an ethnically balanced federation of 36 states (Zinn 2002). With intensifying competition over the distribution of revenues by the central government and after the withdrawal of the British, ethnoregional conflict escalated to the Biafran war of independence in 1967 after the discovery of oil in the East. A history of political instability presaged the war: ethno-regional conflict over civil

[63] According to Zinn (2002, 3-4), in the Muslim North, traditional rulers were used by the British to implement colonial policy, whereas in the South-West, western-style education and Christianity were spread, allowing Southerners to advance further in the colonial administration and develop faster.

service appointments, electoral fraud allegations, a coup in 1966 followed by massacres of Ibos and a counter-coup. Triggering the violence escalation was the central government's decision to renege on regional autonomy arrangements after the 1967 Aburi Agreements (Zinn 2002, 7). This case not only highlights the link between political instability and civil war, but also indicates the war typically escalates from a process of lower-level violence. There is more on this theoretical expansion of the CH model—to include a focus on escalation dynamics—in section 4 of the paper.

In addition to the fact that the CH concept of democracy does not distinguish between new and old, liberal and illiberal democracies, the CH model may also be subject to important selection effects that explain the non-significance of democracy. Democratic institutions may be endogenous to previous war (Elbadawi and Sambanis 2002) and/or to levels of economic development (Przeworski et al. 2000). To date, these complex relationships have not been studied adequately, with the possible exception of Hegre (2003), who argues that we should study poor and rich democracies separately. Since poor democracies tend to be unstable, they cannot provide effective conflict resolution mechanisms to prevent the onset of war. But more stable democracies in richer countries will be more effective in managing conflict. Other selection effects may be in play, as well. In a conditional fixed effects model of civil war onset using Fearon and Laitin's (2003) data, Sambanis (2003) separates the period covered by economic models to pre-Cold War and post-Cold War and finds that democracy is significant and negatively correlated with civil war in the Cold War period. This recent line of research may point to an explanation for the non-significance of democracy in the CH model: the effects of that variable may not be proportional over different time periods or across levels of development.

Political Instability: When Does it Lead to Violence?

Moving from levels of democracy to the process of democratic change, the case studies make clear the dangers associated with failed democratization. In Burundi, between 1987 and 1993, there was a significant turnover in power, as Tutsi control of leadership positions dropped from 72% to 32% and Hutus increased their control from 28% to 68% (Ngaruko and Nkurunziza 2002, 14). This is clear evidence of political change that accompanied a process of democratization. That process upset the previous balance of power among regions of the country. Up to that point, the Bururi region had concentrated much of the power and wealth: GDP per capita in Bururi was 30% higher than the average of all other provinces, as were school enrollment rates. Per capita tax was a third less in Bururi than in other provinces (Ngaruko and Nkurunziza 2002, 16). Bururi was represented in positions of leadership throughout much of Burundi's history, but it gradually declined, which created instability. Out of 47% of total leadership positions for Bururi in 1967 as compared to 53% for the rest of the 15 provinces, Bururi had only 25% of these positions at the end of 2001. The Tutsi controlled 89-100% of leadership positions in 2000, with Bururi Tutsi heavily represented, but this figure dropped to 47% in 2001, with Hutus controlling 53% (Ngaruko and Nkurunziza 2002, 15). The authors find "a correlation between the major turning points in the evolution of the distribution of leadership between the two groups and the episodes of war" (Ngaruko and Nkurunziza 2002, 17). The faster the relative decline of Tutsi power, the more frequent the episodes of political violence.

While most quantitative studies have found that the level of democracy does not significantly affect the risk of civil war, there is relatively robust evidence that political instability increases the risk of war. There is broad support for this argument in the case studies. A massive political transition to independence and Marxist revolution in Mozambique added to the burdens of a young and weak state and gave way to infighting in various regions of the country (Weinstein and Francisco 2002). In Bosnia, state failure as a result of the crumbling Communist Party apparatus in the wake of the fall of the USSR gave way to nationalist conflict and violence in Croatia, Bosnia, and later Kosovo. In Kenya, one of the periods where a "war" may be coded (see Sambanis 2002b) started as Kenya was verging on political transition in 1991. In December 1991, constitutional reform allowed the formation of opposition parties (Kimenyi and Ndung'u 2002, 13) and electoral violence escalated in the Rift Valley with clear evidence

of government involvement (albeit indirect involvement).[64] The constitutional amendments of 1992 made it possible for an opposition leader backed by the main tribes to contest the Presidency (by obtaining 25% of the votes in at least 5 of the 8 provinces) and this gave Rift Valley politicians an edge, as 36% of the population is composed of major tribes in the Rift Valley (Kimenyi and Ndung'u 2002, 16). The government responded by organizing ethnic violence with the aim of displacing people from the Rift Valley to dilute the strength of the opposition.

What the quantitative studies do not capture, however, is the increased risk of political violence that can result from a *power transition* even without a *regime transition*.[65] Consider the case of a change in leadership in a dictatorial regime. Polity IV would still code the country as autocratic, if the institutions of dictatorial exclusion are preserved through the leadership change. But disaffected elites with access to war-making capital may strike at the new leadership and a civil war can occur from a military coup without a substantive change in the underlying polity score. Indeed, violence in authoritarian regimes can occur precisely in an effort to prevent such leadership change, as in the case of Kenya during the Rift Valley riots.

The risks associated with political instability seem to be magnified with economic transition. Declining growth in 1990s and negative growth since mid-to-late 1990s exacerbated the political conflict in Kenya's Rift Valley (Kimenyi and Nding'u 2002). In Azerbaijan, Chechnya, and Georgia, it was not only the disintegration of the USSR, but also the transition to a free market that magnified the political conflict between titular nations and ethnic minorities (Zurcher, Kohler, and Baev 2002). The selection effects mentioned previously are relevant again here, as economic decline weakens political institutions and makes them even less able to respond to crisis.

Several cases, particularly those of the conflicts in the Caucasus, suggest that broad-ranging political instability of the sort that occurred with the collapse of the USSR may be a necessary but not sufficient condition for conflict escalation and violence. Of all the former Soviet Republics, only a small number actually descended into violence. We learn three important lessons from careful case studies of that region. First, not all regions had the same level of latent nationalist sentiment and the potential for nationalist mobilization and conflict differed according to the level of nationalist education they had received in the pre-Soviet period (Darden 2002). Second, in several former Soviet and former Yugoslav Republics, the collapse of the USSR spelled conflict between ethnic minorities and politically dominant titular nations that were previously forced to coexist by an authoritarian and repressive central administration (Glenny 1999; Zurcher, Kohler, Baev 2002). Third, these latent ethnic conflicts were likely to escalate into civil war due to external interference or political failure of the dominant elites to assuage the fears of ethnic minorities. In Georgia, Russian interference took the form of bussing Chechen fighters to support Abkhazian demands for self-determination. In Chechnya, collapse of the USSR meant a chance to pursue a long-held desire for national independence. In all these places, we had significant wars.

But in other areas of the former USSR, political instability and economic strain in the early 1990s did not translate into civil war and this was at least partially due to the strength of local political institutions. Chechnya's neighbor, Dagestan, was one of the poorest regions of the USSR, but unlike Chechnya, had no natural resources and was ethnically highly fractionalized.[66] Dagestan has a population of around 2 million, composed of 30 distinct groups. The four major groups, Avars, Dargins, Kumyks, and Lezgins together make up 70% of the population. After the collapse of the USSR, Dagestan's multiethnic political elite adopted a new constitution (in 1994) aimed at equitable ethnic representation in all levels of

[64] The Rift Valley violence between Kalenjin and other tribes, especially Kikuyu, Luo, Luhyia, and Kisii is typically not coded as a civil war. But Kimenyi and Ndung'u provide sufficient evidence of state participation in the violence.

[65] I thank Keith Darden for pointing this out.

[66] These factors would reduce the risk of civil war in Dagestan, according to the CH model.

government. The 1994 constitution fostered stability as did the informal *dzhamaat* system (a multiethnic village community). The *dzhamaats* are sometimes governed by customary law and are the locus of political loyalty, making ethnic group membership less salient (Zurcher, Kohler, and Baev 2002, 52-55). The *dzhamaats* allow ethnic balancing at the local and national levels and increases within-ethnic group competition, which reduces the risk of an ethnically-based rebellion. This case, therefore, seems to provide an example of a mechanism through which ethnic fractionalization increases the coordination costs of rebellion, which is consistent with the predictions of the CH model. However, fractionalization alone does not achieve the cooperative outcome we observed in Dagestan. Political institutions were pivotal in resisting the invasion by Chechen rebels and achieving stability after the collapse of the USSR.[67]

Just as successful democratic transitions may reduce the risk of conflict, so failed democratic transitions can increase the risk of political violence. Examples of failed democratization abound. The case of Zaire/DRC offers a useful glimpse into the manner in which failed democratization leads to conflict escalation: it usually happens through power struggles among corrupt elites or ideologues, or through the deliberate exclusion of ethnic minorities who feel increasingly threatened in the climate of uncertainty surrounding regime transition. At the time of its independence, Zaire was left with a weak economy, no civil society institutions and no local administrative capacity. The transition from colonialism to independence was sudden and largely attempted through the "Loi Fondamentale," which established a parliamentary democracy with Kasavubu as President and Lumumba as Prime Minister. The law created a federal system, granting provinces the right to elect local governments (Ndikumana and Emizet 2002, 5), but conflict over ideology (Lumumba was a leftist) and resources quickly resulted in a coup and a series of civil wars that set the stage for the establishment of Mobutu's cleptocracy in Zaire. During the Cold War, Mobutu became a valuable US ally and extracted economic and military assistance in return for his loyalty to the West. After the Cold War, as the reasons for such assistance became weaker, so did his reign over the Congo. The wars of the late 1990s ended his rule. Just like democracy, authoritarianism must be stable in order to prevent civil war.

Authoritarianism and Stability

Less democratic solutions to political conflict may eventually yield democratic outcomes, though the transition may be difficult and long. State oppression can certainly result in (a perhaps unjust) peace and in the long run it may lead the way to a more open political system. This was the case of the Greek civil war, where oppression of leftists in the 1950s and 1960s gave way to a successful democratic transition in the mid-1970s and 1980s (Iatrides 1993). At least one author has suggested that a stable, war-free future for Somalia hinges upon supporting local hegemons who can enforce some order among rival factions (Laitin 1999).

While supporting authoritarianism can work in some cases to prevent war onset or recurrence, it is not always straight-forward that supporting local warlords will eventually lead to representative government. A recent finding that autocracies are less stable than democracies (Hegre et al 2001) in conjunction with other findings that regime change increases the risk of civil war and that this risk is even greater in states that transition out of non-democratic regimes (Elbadawi and Sambanis 2002), would suggest that the strategy of supporting authoritarian governance after civil war need not yield stable polities or peaceful societies (Hegre et al. 2001; Elbadawi and Sambanis 2002).

Civil wars are frequently followed by patterns of minority exclusion due to the crafting of postwar institutions around established patterns of political interaction in the pre-war period, resulting in a "reification" of old identities rather than new institutions that can address postwar challenges (Rothschild 2002, 118). If the war ends in a negotiated settlement and not a decisive victory, there can be a number of

[67] See Jones-Luong (2002) for an argument of the impact of constitutional design in preventing violent conflict in Central Asian Republics in the period of post-Soviet transition.

group-based mechanisms to design an equitable polity, three of which are "proportional distribution," "proportional representation in electoral systems," and "cultural and social protections." In negotiating postwar institutions, the first difficulty is that negotiations must include warlords if a stable power-sharing system can be established. To reach a peace agreement in Cambodia, it was necessary to include the Khmer Rouge in the Paris Agreements.[68]

Proportional distribution of political power is one way to manage multicultural societies after civil war. Consociationalism (proportional representation and a minority veto) can in theory at least be good solutions to manage ethnic conflict,[69] but in reality these institutions are difficult to create and credibly maintain as mechanisms of adjudicating ethnic antagonisms (Horowitz 1991). That is perhaps why the empirical record of proportional distribution of power in postwar systems is mixed (Rothschild 2002). Danger lurks especially in countries where ruling elites are ethnically defined, increasing the risk of state failure (Esty et al. 1995).

Another way to manage multiculturalism is through parliamentarianism. Parliamentary systems may be better than presidential systems in managing conflict due to dispersion of political authority, which makes minority exclusion harder (Linz 1996b, Sisk 1996). Statistical evidence that demonstrates the peace "dividend" of parliamentary systems is provided by Reynal-Querol (2002). Another solution at the level of electoral rules in a centralized political system is to foster multi-ethnic proportionality in the central government and reward leaders for "interethnic moderation" (Horowitz 1991). The advantage of such a system is that it could be self-enforcing, if voter preferences and electoral districts are not organized in such a way as to create powerful ethnic majorities. But caution is needed in advocating the adoption of multi-party democracy. Multiparty elections alone are insufficient inducement for cooperation (Walter 2002, 28) because democratic institutions in post-war situations can be hijacked, especially in countries with no multi-party rule before the war (Walter 2002, 29). Walter demonstrates that power-sharing agreements can help in implementing the terms of civil war settlements, but the difficulty there is in controlling for the fact that the power-sharing systems themselves may be the consequence of the previous war (thus making it hard to identify their value added).

The problem with applying insights from the literature on political institutions (consociationalism, parliamentarianism, etc.) to the question of preventing civil war is exacerbated by the fact that the CH model does not consider political grievance a significant cause of civil war. Similarly, the policy recommendation that seems to be supported by the closely related Fearon and Laitin (2003) model is that governments should develop effective counter-insurgency strategies to prevent civil war. Addressing ethnic conflict and creating more open institutions need not influence the risk of civil war. But what the case studies and the brief analysis above suggest is that this might change if the CH (and Fearon and Laitin) models are better specified so as to capture the dimensions of political institutions I have mentioned: how new/old is the regime; how liberal, how open; and what electoral mechanisms has it instituted to manage multiculturalism. To better address these questions, the economic model of civil war developed by Collier and Hoeffler must be revised and expanded. I turn to a detailed discussion of necessary revisions in the next section, drawing upon the case studies for empirical support.

5. DRAWING ON CASE STUDIES TO EXPAND THE THEORY OF CIVIL WAR

Any well-articulated theory must be falsifiable as only falsifiable theories can lead to causal inferences about the dependent variable (Popper 1968; KKV 20-21). The CH model is falsifiable as it generates predictions that, if proven wrong, would invalidate the theory; and the theory clearly identifies the assumptions and variables on which it rests. The theory is consistent with prior evidence about the

[68] The Khmer Rouge later reneged on the agreement and did not become part of the postwar polity, though former Khmer soldiers who wanted to be reintegrated were given amnesty. See Doyle (1997).
[69] Horowitz 1985; Lake and Rothschild 1996; Lijphart 1977, 1984.

occurrence of civil war and builds (and in some cases overturns) prior theories of civil war. In considering the results of the case study project, it will be useful to establish if these results merely refine the CH model or if they falsify the model.

A number of theoretical extensions to the CH model are suggested by the case study project. This section is organized along seven major theoretical extensions and revisions of the model. First, we must take better account of escalation dynamics and government repression to explain the outbreak of war. Second, we must "unpack" the democracy variable to identify which political institutions matter, when and how. Third, we must re-conceptualize the relationship between ethnicity and violence. Fourth, we must model the regional and international dimensions of civil war. Fifth, we must consider violence as a recurring phenomenon and re-think the meaning and definition of civil war and the similarities between civil war and other forms of political violence. Sixth, we must account for case heterogeneity: the role of ideology, the combatants' war aims, and the type of warfare may all affect the theory's fit to the data. Finally, there are important arguments in favor of accounting for the role of elite preferences and regional inequality in explaining the outbreak of war. I take up each of these topics in turn.

Escalation Dynamics

Case studies give us historical and political context for the periods in between events of civil war in various countries. In quantitative datasets, where civil war is coded as a binary variable, we are not able to assess how close to civil war a country is before a war is actually coded. By contrast, case studies can describe social protest and low-level violence leading up to civil war and can tell us if civil wars occur suddenly and with little warning –like earthquakes— or slowly and with much buildup –like volcano explosions. Case studies can also allow us to explore the dynamics of social protest in countries where war was predicted but did not occur. Nigeria, for example, has been a false positive war prediction for many years, but it has seen a lot of ethnic rioting. It would be valuable for our theories and for policy design to understand why a country such as Nigeria, which has not had a civil war in the past 15 years or so, but has rather had a lot of rioting with high numbers of deaths. Perhaps the answer lies in how the government has handled political protest and ethnic conflict. We can gauge much insight into the escalation dynamics of civil war from our case studies.

In Nigeria, what triggered the war in the 1960s was the demand for independence by the leadership of the Biafra region. Faced with such a demand, the government could have responded with repression, accommodation at the center, increased independence (regional autonomy), or *de facto* independence as in the cases of the regions of Somaliland, Abkhazia, and Trans-Dniester Republic (Gurr 2000). State capacity is what largely decided the approach to be used. Strong states have the capacity to either accommodate or suppress demands for self-determination at low cost (Gurr 2000, 82). It is easier to gain concessions from the government by pursuing non-violent movements that do not threaten state security.

Related to this argument about state strength is one of the main insights from the case study project: government repression increases opposition and, if repression is incomplete, it can lead to violence.[70] Zinn (2002, 27-29) conjectures that some rebellions escalate into full-blown civil war either because the state does not adopt an accommodative position, or because it follows a strategy of incomplete repression. In the case of Nigeria in the 1990s, the Ijaw rebellion did not grow into a civil war because the Ijaw mostly used violence against other communities and oil companies, so the government did not feel sufficiently threatened and was able to grant concessions to the Ijaw. However, in all instances in which the Ijaw targeted the police or other government institutions, the government responded with force. In the case of the Muslim Brotherhood, another of Nigeria's numerous rebellions and rioting groups, war was avoided through the use of effective repression. The Brotherhood had backing from Iran and a clear anti-government ideology and used violent tactics. It supported a religious movement wanting an Islamic

[70] Theoretical works and large-N studies have also suggested this. An important paper is Lichbach 1987. See, also, White (1989) on the escalation of the Northern Irish conflict.

state, but the arrest of its leader decapitated the movement in its early stages. Selective repression was effective because it was applied quickly. This is a mechanism through which non-democracies, which can use selective repression more easily, can reduce their risk of conflict escalation.

Zinn's (2002) insight that incomplete repression may cause conflict escalation can help us understand why democratic—or rather democratizing—regimes are often at higher risk of violence. In Indonesia, effective government repression ended GAM activities in Aceh in the 1980s, when the government sent thousands of troops to Aceh and killed or captured most GAM commanders (Ross 2002, 23). But an incomplete repression strategy increased popular grievance and allowed GAM to capitalize on that grievance to build a support base and grow in the late 1990s, when the government became more democratic and more reluctant to use violence to repress the insurgents. In Senegal—a democratic country—rebellion began as a peaceful movement with broad-based support and turned to a violent insurgency largely in response to government repression following the demonstrations (Humphreys and Mohamed 2002).

The "volcano" (or escalation) theory of civil war can explain several cases. Northern Ireland perhaps best exemplifies how civil war can result from a slow, but steady escalation of political protest. According to Woodwell (2002), the pivotal event was the October 5, 1968 march in Derry/Londonderry, when RUC forces assailed the protestors, leading to efforts at partial appeasement of Catholics with British intervention, and a package of political concessions to NICRA. The reforms came late and were not substantial and caused extreme negative reactions by Unionists. Political instability and protest led to O'Neal's resignation in 1969 and a victory for extremists, leading the way to the "battle of the Bogside," which marked the start of the Troubles on August 12, 1969 and the development in 1970 of the Provisional IRA (PIRA). PIRA abandoned the strategy of "abstentionism" that had been used up to that point—something akin to peaceful protest in the US civil rights movement- and adopted instead a radically militant stand against Protestants and the British, transforming a disorganized sectarian protest into an organized political violence campaign.

The potential for escalation increases in regions with prior history of independence or whose "special status" privileges are revoked, as we saw in Casamance, Kosovo, Aceh and elsewhere. In DRC, the *Loi Fondamentale's* overturning legislation on minority rights was seen as a precipitant to violence (Ndikumana and Emizet 2002, 14). Bad governance exacerbated ethnic conflict. A series of nationality laws designed to "protect" the local population in the Kivu region, led the Transitional Parliament to strip Banyarwanda and Banyamulenge of their Congolese nationality in April 1995. In October 1996, "the deputy governor of South Kivu ordered the Banyamulenge to leave the Congo in accordance with the 1995 parliamentary resolution. The Banyamulenge refused to leave and turned to Rwanda for help. The Rwandan government took advantage of this call for help and attempted to resolve the security issue by dismantling the refugee camps, which resulted in the massacre of scores of Hutu refugees" (Emizet 2000).

Escalation risks are also a function of what goes on in the neighborhood. In Lebanon, conflict was brewing all around for years before the civil war erupted. The power of Palestinian organizations increased after the 1967 Arab-Israeli war and Palestinians forged alliances with Lebanese groups. The civil war can be traced back to 1968-69 when armed conflict broke out between rival groups and between the government and Palestinian groups that wanted to use Lebanon as a stage for action in Israel.

Once such conflict starts, how can it be stopped to prevent a civil war? One view is that, if the government is accommodative and grants groups some of their demands (e.g. regional autonomy), then risk of war will be reduced (Gurr 2000). However, the lack of government legitimacy may be so extensive as to make such promises non-credible. In Burundi, Ngaruko and Nkurunziza (2002) explain that the political exclusion of Hutus from elite positions led, over time, to lower educational opportunities and economic power for Hutus. Political repression of the Hutu population and violence against Hutu leaders backfired into coup attempts by the Hutu in 1965 and 1972 and counter-coups by the Tutsi, leading to massacres of Tutsi by Hutus in 1965 and 1972 and a large-scale Hutu rebellion, more

massacres and the involvement of the army and ethnic militias. The lack of democratic governance and the collapse of political and judicial institutions meant that there was no source of legitimate authority that could break the cycle of violence (Ngaruko and Nkurunziza 2002, 12).

This raises an interesting question: under what conditions will governments be accommodative? And when will policies of accommodation be credible? Much of the political science literature would argue that the best policy of accommodation can be reached in the context of a politically decentralized system. A federal or consociational system may offset fears of political domination in an ethnic fractionalized society (Lijphart 1969), but will such a system be able to make credible promises or will it revert to centralization over time (Lake and Rothschild 2001)? Much of the discussion on political institutions and democracy was included in section 4. I now focus more closely on the usefulness of political and economic decentralization in diffusing civil war and I start by considering when we are likely to observe decentralization. The tension with the CH model is apparent as, by considering the issue of decentralization, we are stepping outside the set of variables that the CH model would consider relevant in influencing the occurrence of civil war.

Political Institutions: When is Decentralization More Likely to Occur?

No study to date has established a set of necessary and sufficient conditions for governments' adoption of political and economic decentralization policies. However, the following plausible determinants are found in the literature: the number of major ethnic groups, the degree of territorial concentration of those groups, the existence of ethnic networks and communities across the border of the state, the country's dependence on natural resources and the degree to which those resources are concentrated in the region's territory, and the country's per capita income relative to that in other regions. Persistent self-determination movements are also more likely to get attention by governments and force the adoption of decentralization policies: both the Catalans of Spain and the Quebecois of Canada have had long-standing demands for greater autonomy and were able to secure constitutionally-provided autonomy concessions from the state.

Regime type is a likely determinant of the demand for and supply of decentralization arrangements. Democratic countries may be more amenable to the devolution of administrative authority to regions, if this is a demand that is consistent with the majority vote. At the same time, in democratic countries that are well-integrated in the international system, we may be less likely to observe a trend toward decentralization, as this may lead to increased risk of secession and, consequently, to suboptimal scale of provision of public goods for the state.[71] Thus, we would expect to see the government making side-payments to minorities to induce them to remain committed to the state and these side-payments can result in greater economic decentralization and/or greater participation in the central government structures. Payoffs could range from land reform in the periphery to income redistribution at the center.

Where self-determination is pursued violently, decentralization is likely to be used as a concession to minorities who might otherwise pursue secession (several examples in India as with the Nagas and Tripuras). In post-civil war societies, decentralization can be a good way to organize politics between the central government and an ethnic minority. There are several examples of government-negotiated and internationally arbitrated decentralization in civil war settlements: the Dayton accords in Bosnia, the autonomy agreements in Mindanao in the Philippines,[72] the federal political structure in Ethiopia following the fall of the Mengistu regime, and the solution pushed by NATO countries in Kosovo to prevent the partition of the province from Yugoslavia while restoring a level of regional autonomy that would protect the rights of Kosovar Albanians.

[71] This can be inferred from the model developed by Alesina and Spolaore (1997).
[72] It is worth noting that the autonomy agreements in the Philippines were unsuccessful in ending the war. One faction, the MILF, continued the insurgency.

The formation of movements (sometimes violent) for self-determination is also likely to be affected by the level of political decentralization (there is no unidirectional linkage between *ex ante* level of decentralization and the demands for more decentralization). The *ex ante* degree of political decentralization can serve as an indication of how accommodative the state will be vis-à-vis groups' demand for greater autonomy. Decentralization policy therefore complicates the reasoning that other authors have put forth on the relation between regime type and self-determination movements.

Conventional wisdom is that the governance of multicultural societies is easier if a system of indirect rule is adopted (Hechter 2001). Decentralization of authority (federalism, consociationalism, regional autonomy) can allow a degree of self-determination while preserving the unitary character of the state. However, decentralization may also feed those demands and eventually lead to demands for full-blown secession. The conditions under which each of those two outcomes will be attained are not well-understood in the literature.

Political decentralization—understood as the delegation of powers and authority for autonomous decision-making to subnational units—is aimed at a more efficient and equitable solution to problems associated with the provision of public goods. The best-known efficiency argument in favor of the local provision of public services is Tiebout (1956), who explains that local efficiency in service-provision is the result of competition between subnational governments to attract investment, firms, or residents. If economies of scale are not too large, decentralization can lead to more efficient allocation of resources by targeting public goods provision to the preferences of particular local communities (Oates 1972). Decentralization can also act as a way to insert checks and balances in federal institutions (Weingast 1995), and can facilitate policy innovation (Kollman et al. 1996) and government efficiency in the implementation of economic reforms (Treisman 2000). Meaningful political decentralization is characterized by the presence of lower/sub-national levels of government with constitutionally determined or residual rights of control of several important issue areas (Riker 1964).

The benefits of decentralization will depend on the optimal scale of production of particular public goods (Lake and Rothschild 2001). We would therefore not expect to observe decentralization where the assumptions underlying efficiency models of decentralization do not apply. Specifically, decentralization would not be effective if there is imperfect factor mobility across regions; if there are high transaction costs to mobility (e.g. ethnic networks in the professions); or if we have semi-permanent heterogeneity in local preferences due to the region's political geography as when we have ethnically mixed and immobile populations.[73] In countries with such characteristics, we would expect central governments to have less interest in decentralization. Decentralization is more likely to be observed in countries that started out as federations or were the result of merging distinct ethnic and religious groups. It is less likely to be observed in countries that started out with highly centralized political systems or where there were large inflows of migrant populations, who become territorially concentrated and demand some peripheral autonomy and more resources.[74]

Decentralization's Effects on Political Conflict and Violence

The literatures on decentralization, regionalism, nationalism, civil war, protest movements, ethnic networks and identity formation are all relevant to the question of the formation of self-determination movements. There is a difference of opinion in the literature about the causes of self-determination movements. Authors have suggested that demands for self-determination are more likely to be expressed in countries with large ethnic groups that are territorially concentrated (Toft 2001); in countries where ethnic networks exist linking communities that straddle borders (Horowitz 1985); in old empires or post-colonial states with incomplete state-building and nation-building experiences (Smith 1991); in regions

[73] See Lake and Rothschild (2001) for a relevant and insightful discussion.
[74] Fearon (2001) argues that wars between a central government and large migrant population last much longer than other sub-categories of civil war.

with high levels of internal migration (Smith 1991) or "internal colonialism" (Hechter 2001, 1999); in modern states with peripheral *ethnies* that are subordinated to core *ethnies* (Smith 1991, 2001); in authoritarian states that repress minority rights and cultural practices (Gurr 2000); in "backward" regions of "backward" countries (Horowitz 1985), though secession by "advanced" groups in "backward" states is also possible.[75]

Political decentralization can be a strategy to reduce the risk of civil war in those countries with self-determination movements. Decentralization is a reactive or reflective political system.[76] It is reflective because it takes cultural or political divisions as given and works around those divisions to create a system of quasi-independence, reducing the level and depth of interaction between the center of power and peripheral regions. In countries that have experienced civil war, decentralization has been recommended as a way to safeguard territorially-concentrated minorities, but it can also reflect or justify the war's military outcomes as warring factions gain greater autonomy from the state. Decentralization as an answer to violent political competition among ethnic groups is a policy that is ridden with moral hazard problems: if the international community endorses decentralization or secession as a way to end ethnic violence, it may inadvertently increase the incentives for violence of the most violent and uncooperative groups, thereby increasing the likelihood of violence. This can also serve to create resentment at the center and can mobilize some groups to demand greater centralization.

Decentralization or federalism may actually exacerbate the time consistency problems associated with civil war settlements. According to Lake and Rothschild (2001, 4), there are limited conditions for successful political decentralization after civil war: "Only where multiple groups cohabit the same national space, none can achieve control over the state, each is led by moderates willing to accept the desires of others for cultural, linguistic, and religious autonomy, and democracy is robust is decentralization likely to prove a stable and effective long term solution." Lake and Rothschild (2001) find that, out of approximately 30 negotiated settlements of civil wars, there have been ten cases where semi-federal institutions were established.[77] Negotiating an end to civil war is difficult due to the problem of credibly committing to the agreement after the insurgent groups have been disarmed (Walter 1997, 2002). The logic of decentralization can be helpful here, if it provides a greater sense of security for the rebels, though in those cases where the government's credibility is low, then the time-consistency of federalism might be in question and the parties might be reluctant to agree to a federal framework.

One way to achieve a more credible commitment to peace in a decentralized state is to integrate the security forces and allow minority groups to maintain separate police forces in their own jurisdiction. While this seems like a commonsensical argument, we do not yet have substantial cross-national evidence to support it empirically. In an excellent study of ethnic violence in India, Wilkinson (2001) analyzed the determinants of the timing and severity of Muslim-Hindu riots at the sub-national level over a span of several decades. He considered if consociationalism at the state level or if the ethnic composition of the police forces at the sub-state level mattered for preventing violent riots. Wilkinson found that states with the highest degree of under-representation of Muslims in police forces often had as bad a record of human rights and rioting as states with relatively low under-representation of Muslims. This is evidence against one of the tenets of consociationalism (which suggests minority representation as a way to reduce ethnic tensions). He found the electoral competition and the proximity of elections were significant determinants of the timing of violence, and non-violent resolution of conflicts was more likely in districts where the ethnic minority was a valuable ally in electoral coalitions. Wilkinson further argued that there was a low and non-significant relationship between indicators of ethnic proportionality and lack of

[75] The secession of Slovenia and Croatia from Serb-dominated Yugoslavia is an example of this. However, one difficulty with applying Horowitz's (1985) schema is that the classification of countries, regions, or groups into "backward" and "advanced" categories is subjective and hard to apply systematically.

[76] On the distinction between reactive, reflective, and proactive systems in the context of an evaluation of the state of democratic theory, see Shapiro (2001).

[77] Those cases are Argentina (1955); Sudan (1963-72); Nigeria (1967-70); Cambodia (1979-91); Mozambique (1979-92); India (1985-93); Sri Lanka (1987-89); Burundi (1988); Tajikistan (1992-94); South Africa (1993-..).

violence in India (this was based on a series of multiple regressions for the period 1975-1999). Wilkinson attributes this finding to the fact that basic statistics on representation mask the real or effective level of representation and freedom for minorities, which is often determined by the operation of institutions and the actions of elites and not by constitutional rules or the ethnic composition of the police force. Also, the salience of identity may be different across Indian states and the type of institutions that have been created may be endogenous to identity salience. Thus, in some states it may be enough to have relatively small minority representation in police forces to keep the peace. Wilkinson's critique of consociational solutions to ethnic conflict notwithstanding, no cross-national study to date has shown that minority representation in government and in local policing has a negative effect (increasing ethnic violence). There is sufficient case-study evidence (e.g. from Bosnia, Cyprus, among others) to suggest that such representation is a necessary element in every post-civil war negotiated settlement to increase confidence in effective monitoring of violations of the peace.

Another condition for the success of federal or semi-federal post-war institutions is that parties must be able to define their utility from the federal agreement in absolute terms—i.e. they must not be concerned with how much their competitors are gaining. If they are interested in relative gains, then the space for a feasible agreement narrows and conflict is likely.[78] An example of the prevalence of relative gains concerns in the negotiation of federal structures after civil war is the negotiation over refugee resettlement in the town of Varosha, in Cyprus. After the end of the Cypriot civil/international war, UN-sponsored talks focused on the return of the Greek residents of Varosha in exchange for economic concessions to the Turkish-Cypriot side, which included opening up the border at Varosha to allow tourists and businessmen to enter the Turkish-occupied part from Varosha. The resettlement plan would have returned 40,000 Greek refugees to their homes without upsetting the military balance and the economic concessions would have increased Turkish-Cypriot GDP more than 20%.[79] These negotiations, however, failed because each party was more concerned with what the other party was getting out of the deal than with the direct benefits of the agreement to itself.[80]

Given the potential instability of decentralization, one must ask if centralization is a better alternative (in terms of its impact on the likelihood of violent conflict). Scholars have observed a trend toward more centralization after civil war, with the consolidation of power occurring during the peace process (Lake and Rothschild 2001). This trend may be explained as a consequence of the increased risks of secession that may result from a policy of decentralization. In cases such as South Africa, where the system adopted in 1993 gave provincial legislatures the authority to legislate on several issue areas (e.g. health, housing, transport), there was a steady trend toward more centralization. Other countries that have adopted federal institutions in their early years have eventually moved toward more centralization (e.g. Argentina, Nigeria, Pakistan, and Venezuela). Nigeria is perhaps the best example of this: the country shifted towards greater centralization from 1966-78 and subsequently returned to being more federal in the early 1980s, shifting back toward more centralization in the mid-1980s and early 1990s. However, there are exceptions to the pattern. There are several examples of countries with long periods of stability in their decentralized systems. Nigeria itself, it can be argued, has overall moved toward more decentralization as it increased the number of states from 4 in 1963 to 37 at the time of writing, though

[78] Hirschleifer (1995) shows how peace negotiation is impossible in the case of antithetical preferences, making continued conflict a rational outcome.

[79] The World Bank and the IMF jointly conducted studies of the expected economic benefits of these proposals and they found that the benefits were significant for both communities, though more so for the Turkish Cypriots, whose GDP would have increased by an estimated 20 percent. Sambanis (1999) explains that the IMF and World Bank estimated that the re-opening of the airport alone could have brought an annual income of $43-90 million to the Turkish Cypriot community.

[80] The parties might also have been uncertain about the future implications of agreement on this issue and how it would impact their future bargaining position. That concern could also explain non-agreement. However, in this case, there were credible external guarantees on the enforcement of the provisions of the agreement and neither party had articulated a clear concern over specific ways in which agreement over Varosha would impact its future bargaining position.

the increase in the number of states need not imply a substantive increase in the regions' autonomy. Other examples are Australia, Canada, and the USA, which have all retained their federal character; and Austria, Belgium, and Brazil, among others, which have retained their degree of decentralization or confederalism. Malaysia is an example of a country that successfully moved from semi-federalism to full federalism. Similarly, Comoros, Swaziland, and South Africa, Tanzania, Trinidad and Tobago all moved from centralized systems to more decentralized federal structures in the 1990s.[81]

Decentralization denies the government its monopoly power over the provision of public goods, such as education or policing. When this autonomy extends to the means of defense and regions are able to defend themselves against the government (e.g. through the establishment of militias or well-equipped police or paramilitary units), decentralization is likely to be seen as a stepping stone toward secession. Thus, in post-civil war situations we are likely to see decentralization agreements only when we have a credible central *and* regional government commitment toward peace (i.e. sufficient military power for the regions to enforce the agreement or some external guarantor of peace) *and* a reduced capacity for or interest in secession (e.g. the regional armies' capacities must be lower than the capacities of the government military). In other words, secession must be costly for the regions and denial of some autonomy must not be viable or costless for the government. Under these conditions, some violent secessionist campaigns that have been "settled" through the force of arms can result in relatively stable decentralization. Examples are the autonomy agreements with the Chittagong Hill Tribes in Bangladesh and the Nagas in North-East India. In those cases, increased regional autonomy does not carry extreme risk of escalating demands for autonomy and more violence because past attempts at secession were violently and effectively suppressed by the government. If there is no doubt about the government's resolve or its capacity to suppress secession, granting some regional autonomy can be an effective way to reducing tension and achieving the efficiency gains typically associated with decentralization.

In sum, decentralization will not be chosen as a government policy if it is perceived to increase the risk of violence, either due to popular resentment at the center (among centralists), or due to escalating demands for self-determination by the periphery.

As we have seen, decentralized political institutions may be useful in reducing the risks associated with ethnic heterogeneity. But the CH model tells us that such heterogeneity actually reduces the risk of civil war, hence there may be no need for decentralization or other policies to manage ethnic heterogeneity. I turn to the relationship between ethnicity and civil war next, suggesting a number of ways in which the CH model must be modified to take better account of the direct and indirect effects of ethnicity on civil war.

Ethnic Fractionalization, Dominance, and Polarization

While the CH model seems to be correct in identifying the increased civil war risk associated with ethnic dominance, the case study project suggests several ways in which we must re-conceptualize the relationship between ethnicity and violence. I explain six main lessons from the case studies that pertain to the measurement and analysis of ethnicity in the CH model.

First, the ELF index of ethnic fragmentation used by the CH model and most other papers in the literature is a very crude measure of politically-relevant fragmentation.[82] For example, Cote d' Ivoire has more than 70 ethnic groups and appears to be highly fractionalized in terms of its ELF value. However, natural aggregations of these groups result in three or four major ethnic groups the largest of which, the Akan, is 42% of the population and has been politically dominant by controlling the state since independence

[81] Note that these judgments are made on the basis of large cross-national databases coded up to 1994. I have expanded the coding of relevant variables for the years from 1995-99 for various countries based on additional research and after consulting several databases.

[82] For a conceptual discussion of this point, see Posner (2000); and Laitin and Posner (2001).

(Azam and Koidou 2002). This, therefore, seems like a case of ethnic dominance, not fractionalization. In Kenya, more than 40 large tribes constitute the basis of social and political institutions (Kimenyi and Ndung'u 2002). Most tribes were excluded from government after Kenyatta's post-independence government instilled ethnic favoritism. Political parties are often organized along ethnic lines and it is hard to overlook ethnicity's impact on any and all aspects of social organization. In the DRC, since independence, political parties have had an ethnic basis,[83] except Lumumba's MNC (Movement National Congolais), Gizenga's PSA (Parti Solidaire Africain), and the pro-Belgian PNO (Parti National du Progrès), which was led by Paul Bolya from the province of Equateur (Ndikumana and Emizet 2002, 4). In Nigeria, we have a nominally highly fractionalized country with more than 250 ethnic groups. Yet, the country is effectively polarized along the Muslim North v. Christian and Animist South (Zinn 2002). Each of the Northern, Eastern, and Western semi-autonomous regions is dominated by an ethnic group: North: Hausa-Fulani; West: Yoruba; East: Ibo. But the fact that CH use the ELF score to code ethnic dominance implies that Nigeria is not coded as an ethnically dominated society.

Second, the ELF index omits other important components of ethnic affiliation (such as race or religion) that may be used to support ethnopolitical action.[84] In the case of Lebanon, religious fractionalization was more salient that other forms of ethnic division. Christians and Muslims constituted around 45-55% of the population; but each group within each cleavage was not larger than 20-25% of the population, which would suggest no ethnic dominance even though, on the basis of religious affiliation (which was the politically-relevant ethnic cleavage in Lebanon), we had an intensely polarized society. In Mali, Tuareg and Arab groups are racially and ethnically similar, but a pattern of cultural-political discrimination has imposed a divide between these groups, who have come to consider themselves as racially distinct (Humphreys and Mohamed 2002).

Third, the ELF index is not always well-measured. In Burundi, the "true" level of ethnic fragmentation is higher than it appears. The ELF index for Burundi is 4/100 (the sample average is 52.63), indicating a highly homogeneous society most likely because all groups speak the same language. This clearly misses the reality of salient ethnic affiliations and intense ethnic conflict in Burundi. However, if we were to measure the shares of the population belonging to the two largest groups, we would find that the country is classified as a case of ethnic dominance with 85% Hutu and 14% Tutsi. Ngaruko and Nkurunziza (2002) re-compute the ELF that Burundi would have if each ethnic group spoke a different language. This yields an ELF of 26, which indicates a much more fractionalized society than Burundi's actual ELF score.[85] More to the point, Ngaruko and Nkurunziza (2002, 13) convincingly argue that it is ethnic polarization—not simply numerical dominance or fragmentation—that has created explosive ethnic politics in Burundi, as the political ideology of each group was defined on exclusionary terms.

Fourth, regional concentration of ethnicities matters more than the ethnic fragmentation of the entire country. In Nigeria, despite having more than 200 ethnic groups and an ELF score of 87 which places the country above the 95th percentile of the population in terms of fractionalization, there is significant ethnic dominance in the regions where conflict occurs. This implies that, if our unit of analysis was the sub-national region rather than the entire country, we could find a different relationship between ethnic fragmentation and violence. In particular, we would likely find that ethnic fragmentation is important in explaining secessionist movements at the regional level.[86] A regional measure of ethnic fragmentation and dominance should be contrasted to a national-level measure to identify each concentrated group's relative position in the country. In Russia, the Chechens are only a small minority of the population but they are a majority (73%) in Chechnya (Zurcher, Kohler, and Baev 2002, 51). In Indonesia, 90% of the

[83] Confédération des Associations Tribales du Katanga (Conakat) of Moise Tshombe and the Alliance of the Bakongo People (ABAKO) led by Joseph Kasavubu.

[84] Some authors do not consider race as part of ethnicity, since a racial group need not share a belief in common descent. Horowitz (1985) considers ethnic identity to derive from all ascriptive characteristics.

[85] With 3 groups at 85, 14, 1% of population each, the ELF index is recomputed as ELFadj = 100*[1-((0.85*0.85)+(0.14*0.14)+(0.01*0.01))]=26.

[86] Milanovic and Sambanis (2003) are currently working on this topic.

population is Muslim, which might lead one to argue that religion is not a politically-relevant cleavage. However, the distribution of Muslim population in various islands makes religious affiliation politically salient. According to Ross (2002, 6), in non-Muslim areas (e.g. East Timor, Nusa Tenggara, and West Papua), fear of Muslim domination has fueled conflict and two of those areas have had conflicts that we would label civil wars. In Kenya, Kimenyi and Ndung'u (2002, 8) measure ethnic heterogeneity as $(1-s^2)$, where s is the share of the population in a (district) that belongs to the largest ethnic group. They apply this formula to Kenya's 41 districts (in 8 provinces) and rank the districts according to their level of ethnic heterogeneity, finding that of the 13 most ethnically diverse districts in Kenya, 12 (or 92%) have had violent conflicts of one type or another, whereas of the 8 most ethnically homogenous districts, only one (Kisii) experienced violence and that was confined to a border region (with Transmara).

Fifth, the concept of ethnic dominance used by CH is shallow and focuses exclusively on the size of the largest group. In some cases, this might explain conflict: according to Ross (2002) the political and demographic dominance of the Javanese (45% of population; 60% if we add the Sundanese) is at the core of ethnic antagonisms in Indonesia. But, as a general matter, if a group is 45-90% of the population, then the country is coded as ethnically dominated in the CH dataset. This coding leads the authors to code countries such as Bosnia, Northern Ireland, and Lebanon as not ethnically dominated. The model therefore would predict a low risk of civil war in these countries on the basis of their values of the dominance variable. A major shortcoming of this coding rule is that it does not capture the full potential for ethnic conflict that can be created with polarization. Knowing the size of the second largest group is critically important in understanding ethnic violence in each of the three cases above. The improper measurement of ethnic dominance contributed to a false negative prediction in the case of the Biafran war in Nigeria. According to Zinn (2002), CH code Nigeria as not ethnically dominated, reducing the risk of war. But, in practice, each of the three semi-autonomous regions is dominated by a single group. Northern dominance has been a constant source of conflict in Nigerian politics and, in the 1990s, led a mutiny and other small-scale rebellions (Zinn 2002, 21). We also have ethnic dominance in Mozambique, as the Macua-Lowme tribe is larger than most other sizable minority groups (Weinstein and Francisco 2002, 6). This establishes a good fit with the CH model though Weinstein and Francisco (2002) never focus on this aspect of Mozambican society to explain the causes of the war.

Sixth, the currently available measures of ethnic fragmentation do not tell us anything about the degree to which ethnic, religious, racial, or other identity cleavages are cross-cutting. How many of the 250 ethnic groups in the DRC share one or more cultural characteristics that might lead to them to forge alliances? We do not yet know the answer to this question for a large enough number of countries. Theorists of ethnic conflict have argued convincingly that conflict potential is maximized when ethnicity overlaps with class, resulting in so-called "ranked" systems (Horowitz 1985). We currently have no information that can help us classify systems into ranked and unranked cross-nationally and this might in fact only be possible or useful if the unit of observation was the ethnic group and not the country. Several cases from our project, however, highlight the explosive potential of ranked systems. Northern Ireland is one of them. The main cleavage there was between Catholics and Protestants. That cleavage was intensified by a pattern of socio-economic stratification that overlapped with religious cleavages (Woodwell 2002). Approximately 90% of Royal Ulster Constabulary and state workers were Protestants.

These six points all suggest ways in which the CH model must be re-specified to better test the hypothesized relationship between ethnicity and civil war. In some cases, the criticisms go beyond mere suggestions for better measurement of the independent variable and a fuller specification of the model and suggest that, by employing the ELF and ethnic dominance variables, the CH model is really not testing a theoretically meaningful set of hypotheses about the ways in which ethnic affiliation and ethnic conflict can lead to political violence.

Neighborhood and Spillover Effects of Civil Wars

The regional dimension of civil wars is almost entirely neglected by the CH model. If civil wars have external causes due to military, economic, or diplomatic interference by major powers or neighboring states, then many of the causal inferences of the CH model may be unstable since the model does not control for regional influences. There have been a handful of studies in the literature that address these regional dimensions.[87] In this section, I concentrate on a few possible mechanisms through which civil wars can have diffusion and contagion effects.

Contagion and Diffusion

According to Lake and Rothschild (1998), civil wars have important contagion and diffusion effects. "Diffusion occurs largely through information flows that condition the beliefs of ethnic groups in other societies. Escalation [or contagion] is driven by alliances between transnational kin groups as well as by intentional or unintentional spillovers, … or by predatory states that seek to take advantage of the internal weaknesses of others" (Lake and Rothschild 1998, 5).

Demonstration (diffusion) effects were clear in several of the cases in our project. A good example was the rebellion in Indonesia's Aceh province, where an independence movement was simmering for decades, following the revocation of Aceh's "special region" status in 1968 by the Suharto government. A brief civil war in 1991 quieted down in the mid-1990s and reignited in 1999 when, in a climate of political instability and economic recession due to the East Asian financial crisis, East Timor's referendum on independence emboldened Acehnese resistance. Ross (2002) traces the onset of mass protest in favor of independence in Aceh in November 1999, following soon after the September 1999 referendum in East Timor (Ross 2002). In Senegal, Humphreys and Mohamed (2002) argue that the Casamance movement was influenced by the ideology of the independence struggle in Guinea-Bissau. This influence became more tangible as war broke out in Casamance and Guinea-Bissau was used as a location for cross-border bases, a market for goods, and a source for arms (Humphreys and Mohamed 2002).

Examples of regional contagion abound in our case study project. Yugoslavia's wars, in Croatia in 1991, Bosnia in 1992-95, Croatia again in 1995, and Kosovo in 1998-99 all shared similar characteristics and were influenced by the ideology of greater Serbia and greater Croatia (Kalyvas and Sambanis 2003). In the former Soviet Republics, wars clustered around the Caucasus in the early 1990s, taking advantage of war- and region-specific physical and human capital (Zurcher, Kohler, and Baev 2002). Sierra Leone's civil war was sustained by international crime networks that were engaged in arms-for-diamonds trade (Davies and Fofana 2002). The civil wars in the African Great Lakes region are perfect examples of contagion as recurrent wars in Burundi and Rwanda spilled over their borders and influenced each other as well as the DRC and involved Uganda and Zimbabwe in international interventions in the Congo.

Ngaruko and Nkurunziza (2002) trace the complicated neighborhood effects of the Burundi and Rwanda civil wars. In both countries, the wars have occurred between the same two ethnic groups—the Hutu and Tutsi. The Rwandan "social revolution" of 1959 caused a transfer of power from the Tutsi monarchy to a Hutu majority, leading to massacres of Tutsi and massive refugee movements, some to Burundi (Prunier 1995). Tutsi groups in Burundi feared a similar development as the Hutu were also the majority in Burundi and the Tutsi sought to consolidate their power over state institutions, especially security forces (Ngaruko and Nkurunziza 2002). This recurrent ethnic conflict crossed borders and persisted over time, being at the core of around 7 episodes of civil war in the two countries since 1960. But the neighborhood effects have affected other neighboring countries. During the more recent round of civil war in the 1990s, Burundian rebels sought refuge in neighboring Tanzania and DRC and recruited among the Burundi

[87] Brown (1996); Lake and Rothschild (1998); Sambanis (2001); Gleditsch (2003).

refugee population in Tanzania. Provinces neighboring those countries have had the highest incidence of fighting and displacements of people (Ngaruko and Nkurunziza 2002, 34).

There is substantial cross-national evidence in quantitative studies that highlights these neighborhood effects, but these studies do not distinguish between the many possible diffusion and contagion mechanisms. Sambanis (2001) analyzed ethnic civil wars from 1945 until 1999 and found that living in "bad" neighborhoods—i.e. neighborhoods with undemocratic countries and countries experiencing ethnic wars of their own—increases a country's risk of having a civil war threefold. Recent empirical work at the dyadic level suggests that the presence of common ethnic groups across national borders influences the patterns of external involvement in civil war and the spread and internationalization of these wars. The risk of a violent conflict increases if two countries share an ethnic group and one of them has an ethnic majority composed of that group (Woodwell 2001). The presence of ethnic kin across the border may be one of the principal mechanisms that transmit civil war across border. In Macedonia, for example, the main risk of civil war in the 1990s came from ethnic Albanians who were actively supporting independence in neighboring Kosovo and were directly responsible for the organization and support of Albanian armed opposition to the Macedonian government across the border (Lund 2002). Another possible explanation is that civil wars result in the accumulation of war-specific physical capital such as small arms that is easy to spread across the region. In several cases, we find this to be an important factor, as in Sierra Leone, for example. But in other cases, the availability of small arms in the region had no appreciable effect on war onset, as was the case in Mali and Senegal according to Humphreys and Mohamed (2002).

This argument has two implications. First, civil wars in neighboring countries may be regional phenomena. If the war in Burundi or Rwanda is really a war between Hutus and Tutsis in the Great Lakes region and not one specifically between Burundi Hutus and Burundi Tutsis or Rwandan Tutsi against Rwandan Hutu, then the country-year is not the appropriate unit of observation to study civil war. Instead, it would be more appropriate to focus on the ethnic group or a region that does not necessarily correspond to national boundaries. With current data limitations, however, it may not be feasible to adjust this unit of analysis problem.[88] Second, civil wars are affected significantly by wars in neighboring states or by non-state actors in neighboring states. These influences must be modeled and properly analyzed. Gurr (2000, 92), for example, argues that the presence of politically mobilized ethnic kin across the border increases the opportunity for rebellion. This implies the need for the implementation of methods from spatial statistics that control for the non-independence of cross-sections (countries) in our panel datasets. For these relationships to be properly modeled, we must identify some of the diffusion and contagion mechanisms that underlie these trans-border influences. Next, I consider three such mechanisms: refugee movements, external intervention and international war.

Refugees, External Intervention and International War

One major consequence of civil wars is human displacement. Fourteen percent of the population of Burundi has been displaced as a result of war. Thirty percent of the population of Cyprus was displaced after the 1974 war. Refugee flows of that magnitude contribute to the risk of civil war in a number of ways. First, they must surely reduce economic growth in the civil war country and neighboring states, which further increases the risk of war.[89] Second, refugee movements can increase the risk of civil war through the establishment of insurgent bases in neighboring countries (see Burundi case study). In Rwanda, violence around the border with the DRC has continued into the late 1990s as exiled ex-FAR (Rwandan Armed Forces) stage attacks on the population. Such insurgent bases across the border allow direct military intervention by non-state actors. The problem for the CH model and the civil war literature in general is that the effects of such intervention have not yet been fully measured and we even do not

[88] Developments in the Minorities at Risk dataset may make it possible to eventually estimate a panel model of civil war onset at the group level.
[89] See Murdoch and Sandler (2002) for a spatial analysis of the growth spillovers of civil war.

know how to classify such armed conflict, as it does not meet the coding requirements of civil or interstate conflict.

A third way in which refugee movements can increase the risk of war is through their effects on delicate demographic balance in conflict-prone neighboring regions. A large influx of refugees from Burundi and Rwanda since 1959 to the Eastern Congo has threatened the ethnic-demographic balance of the Kivu region, contributing to conflict among natives, migrants, and refugees. In the 1990s, the arrival of Hutu refugees from the wars in Burundi and Rwanda increased ethnic conflict with the Banyamulenge and refugee populations. Conflict also broke out among members of the Banyarwanda—a local group that was composed of Hutu and Tutsi—as the group broke down along ethnic (Hutu-Tutsi) lines with the arrival or large refugee populations (Ndikumana and Emizet 2002, 25).

While these indirect ways through which civil wars can spill over in the region have not received much attention in the literature, more direct international intervention has received sufficient attention. In the quantitative literature, the effects of military and economic intervention on civil war duration have been analyzed by Regan (2000; 2002) and Elbadawi and Sambanis (2000). However, there is much less attention on the link between external intervention and civil war onset. Case studies on Mozambique, DRC, Burundi, Rwanda, and Georgia all demonstrate the key role of external economic and military assistance in sustaining rebel movements from the first stages of rebellion.

Once a war starts, mistrust and hostility increases and ending the war with a negotiated settlement becomes harder. Oftentimes, interventions by outside states lead to protracted wars, instead of helping to end the wars more quickly. According to Licklider (1995; 1993) negotiated settlement is a function of the parties' internal capabilities, which can be influenced by external interventions. Looking at wars from 1944 to 1999, Regan finds that unilateral interventions lengthen the expected duration of a conflict; biased interventions shorten expected durations *relative* to neutral interventions, but in absolute terms, they also increase war duration. Regan showed that longer-running conflicts have more outside interventions, but we cannot readily discern if the causal relationship runs the other way.

By contrast, Elbadawi and Sambanis (2000) control for the expectation of partial (biased) external intervention in a model of civil war duration and find that expected intervention increases war duration.[90] They expand the Collier, Hoeffler, Soderbom (2001) model of war duration by modeling external support for the combatants as an influence on the costs of continuing the war. A highly fractionalized country might impose a "natural" break to the growth of rebel forces, since rebel cohesion is frequently built on ethnic ties that unite rebels. Greater rebel cohesion increases the expected duration of a war. Elbadawi and Sambanis (2000) argue that external intervention can offset this constraint and can assist even small ethnic groups in sustaining long rebellions. Regan also shows that the balance of capabilities between the government and opposition influences war duration. Since the decision to continue fighting can be thought of in terms of an expected utility calculation, Regan shows that high expected benefits from continued war increase expected war duration. The target of the intervention should also have an independent effect on the duration of a conflict, though the mix and amounts of the military or economic intervention should also directly influence the duration. And opposing (or counter-) interventions—unless they are dramatically unequal in terms of the capacities they bring to bear on the conflict—tend to maintain the status quo balance of relative capabilities and prolong the violence.

External intervention may also cause civil war onset. Weinstein and Francisco (2002) make a powerful argument that Mozambique's civil war was largely the result of South Africa's intervention. The role of geopolitics is evident in this case and other African civil wars, as the process of decolonization and superpower competition led to liberation struggles fought by FRELIMO in Mozambique, ZANU in Zimbabwe, the ANC in South Africa, and SWAPO in Namibia. When FRELIMO became the new

[90] They base their arguments on Brito and Intriligator's (1989) formal model of external support that allows an insurgency to grow.

government in Mozambique, it offered safe haven to all African liberation movements and threatened its neighbors, Rhodesia and South Africa. FRELIMO's opposition in Mozambique, RENAMO, initially had a small base of support and its armed struggle against the government amounted to a Rhodesian proxy war against ZANLA guerillas. Weinstein and Francisco (2002, 12-14) show that the level of violence dropped markedly in 1979, when Rhodesian support for ZANLA stopped after the collapse of the Smith regime. RENAMO became incorporated in the South African Defense Forces, from which it acquired supplies, logistical and technical support, accounting for its tight, centralized structure.[91]

Mozambique's experience with external intervention is not unique. The third Congolese war—the Shabba rebellion—was the result of an invasion by Congolese expatriates from Angola (Ndikumana and Emizet 2002). Yugoslavia's ethnic conflict in Kosovo only rose to the level of civil war after NATO's military intervention. And it is doubtful that the Bosnian Serbs and Croats would have had sufficient military resources to wage war in Bosnia without military support from Serbia and Croatia, respectively (Kalyvas and Sambanis 2003). In Georgia, Zurcher, Kohler, and Baev (2002) tell us that Abkhazian resistance could not have been organized or sustained without Russian and Chechen assistance. The Lebanese civil war cannot be understood as distinct from the multiple external interventions and counter-interventions by the US, Syria and Israel. Each of the local factions engaged in the civil war also represented a foreign government's interest and several governments fought a proxy war in Lebanese territory (Makdisi and Sadaka 2002). The Palestinian movement also influenced Lebanon during Jordan's war of 1970 and the broader Arab-Israeli conflict was a critical determinant of foreign government positions with respect to Lebanon during most of the Cold War. In Sierra Leone, persistently high levels of poverty, slow growth, low levels of education, and high dependence on natural resources had not caused a civil war until soon after a war started in neighboring Liberia in 1989. Charles Taylor offered Foday Sankoh, leader of Sierra Leone's RUF rebels, a base from which to organize a rebellion. Sankoh had received his insurgency training and arms from Libya (Davies and Fofana 2002). In this and many other civil wars in Africa, such as the ones Mali, Chad and Indonesia, Libya's involvement proved critical in facilitating war. Quaddafi proved an exceptionally meddlesome neighbor.

What the case studies suggest, therefore, is that external intervention may be a cause of civil war onset. If this is true and if the likelihood of external intervention is correlated with any of the independent variables in the CH model, then the CH parameter estimates will suffer from omitted variable bias. It is possible to test for this by coding a variable for external intervention and adding that variable to the CH model and re-estimating it. However, since several of the variables that might explain whether or not there is intervention also matter as determinants of war onset, we may be having an endogeneity problem. Thus, the model may have to be re-estimated while endogenizing intervention, as was done in the model of civil war duration by Elbadawi and Sambanis (2000).

Violence as a Cyclical Recurring Phenomenon?

Genocides, Politicides, Coups, and Civil Wars

Most of the countries in our project seem to have been experienced cycles of violence. Civil war is only a part of these cycles. By isolating civil war in quantitative studies, we have made an arbitrary decision to consider one form of organized political violence in isolation from other forms of violence. Our analyses are therefore missing the relationship between other types of violence and civil war. 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

[91] Of course, intervention cannot succeed where there is no local support for rebellion. In Mozambique, Frelimo's failed socialist agricultural policies, intense political repression, and Southern political dominance all combined to create a favorable climate for external agitation to civil war.

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 Yugoslavia and Greece in the 1940s; see Glenny 2001).

Coups and politicides can easily escalate into civil war. In the Singer and Small (1994) and Small and Singer (1982) datasets, there are several civil wars that were, in effect, very bloody coups where the opposition managed to inflict some casualties on the state (e.g. Costa Rica in 1948, Bolivia in 1952, Argentina in 1955). In some cases, the decision to include or exclude a case hinges on a handful of deaths: Fearon and Laitin (2003) include Argentina in 1973 as a civil war, whereas most other datasets code this as a politicide, since most of the violence took place after a coup installed a new authoritarian government that purged the political opposition. It happened that slightly more than 100 people were killed on the state's side over several years, so this classifies the conflict as a civil war according to the Fearon and Laitin (2003) coding rules. More to the point, no coding rule to date specifies the time period over which the stronger party must incur those deaths in order to establish that there was "effective resistance"—a criterion of civil war. The Argentinian state may have suffered 50 deaths a year for 4 years and this qualifies the conflict as a war. If it had suffered 19 deaths a year for 4 years, this would not have been a war. If the difference between a politicide and a civil war hinges on a few deaths, then we do not know if there is an empirical basis to distinguish between politicides and civil war. Nevertheless, all studies of civil war to date exclude one-sided political violence as substantively and qualitatively different from civil war.

In light of the coding and other data issues discussed here, it would be informative to test if the CH model predicts politicides just as well as it predicts civil wars. If it does, then there would be no *a priori* empirical basis on which to exclude those events of political violence from the dataset.

Crime, Grievance, and the Organization of Violence

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. They found that, 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. State weakness typically causes such violence or at least allows it to occur. Organized crime can be considered an organization for extortion, smuggling and drug trade 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. 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).

The function of "loot" in motivating violence is another dimension that links organized crime to civil war. The form that violence will take will be determined by the type of "loot" and the way it can be

appropriated. If ordinary crime or corrupt business practices are sufficient to fund criminal organizations, then civil war is not 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 as it can act as a deterrent for the escalation of violence. But criminal and political violence together 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 (see Lowi 2002, and Martinez 1998, with reference to the Algerian civil war).

Terrorism can also feed from 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.[92] 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, Kohler, 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 the CH model and other prominent economic models of civil war, such as the Fearon and Laitin (2003) model. In ongoing research, I am developing a theoretical framework that explains the organization of violence into different forms. I draw on these innovative economic models of civil war, but go beyond them in trying to predict when and how violence will take one of several possible forms.

The Path-Dependence of Violence

One way in which the CH model tries to account for linkages across different events of violence is by controlling for duration-dependence. It does so by controlling for "peacetime"—i.e. days at peace since the previous war. The effect is assumed to be linear and constant, since the actual number of months at peace is included, as opposed to a cubic spline (Beck, Katz, and Tucker 1998), or a decaying function of time (Hegre 2003). Even if these modeling assumptions are correct, the CH model clearly does not capture the effects of political violence other than civil war, or even the effects of civil wars before 1960, which is the start of the World Bank dataset.

The peacetime variable is a critical one for the model and, in light of our case study evidence, must be revised and coded to include all history of organized violent conflict (genocides, massacres, anti-colonial wars, coups). Our case study authors all agree that the model would make far more accurate predictions if it accounted for the spillover effects of various forms of violence (see, especially, the Burundi, Indonesia, Lebanon, and Sierra Leone case studies).

[92] BBC Monitoring Latin America, November 22, 2002.

Unit Heterogeneity—Ideology and War-Type

The above discussion on linkages across various forms of organized political violence naturally brings up the question of unit heterogeneity. In order to make an argument that coups, politicides, and international wars are different phenomena, there must be a theoretical explanation of their difference that can be measured and tested empirically. Another form of heterogeneity—in addition to the heterogeneity between various forms of political violence—concerns the theoretical model's fit to sub-samples of the population of countries that are included in the CH model. There is some basis to argue that the risks of civil war are not spread evenly across countries.[93] Rich, industrialized countries are virtually risk-free. Middle-income countries have low and declining risks. By contrast, poor countries, particularly those in economic decline, are at a much higher risk of civil war. Policy interventions need to be differentiated in these three groups of countries.

The "education" and "income" variables in the CH model would all point to a low risk of war in highly developed countries. This perhaps explains the CH model's estimate of a less than a 2% probability of civil war in 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 development level (not far off from Britain's), and no natural resource dependence could all explain this low estimate. But, in a sense these economic statistics are not central as the IRA was a "volunteer force" that was more concerned with political ideology than with the economic opportunity costs of violence. Sambanis (2001) first made the argument that in pure "ethnic" conflicts—understood as conflicts between ethnic groups and over issues that are at the core of ethnicity—should not be as important as political freedom. Consistent with that argument, Northern Ireland may be a case that illustrates the poor fit of the CH economic explanation of civil war.[94]

Civil wars can be more comfortably aggregated if they are considered essentially economic phenomena—i.e. driven by the opportunity cost logic of the CH model—and their occurrence can be "rationally" explained by the inability to credibly commit to a solution without using violence. In such wars, violence can become ethnicized or dressed in a religious garb, as in Algeria (Lowi 2002). But it is an open question if this ethnicization is indeed imposed or entirely contrived or if it suggests something about the underlying impact of ethnicity on social relations. 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 the paper (and other sources on Algeria) point to more than one period of serious economic decline. Under Boumedienne (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?

In many cases of civil war, 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 this pattern of rebel group organization as evidence that the war is an ethnic war (Licklider 1995; Esty et al. 1995; Sambanis 2002b). Others argue that ethnicity is used as a cover for economic motives (Collier and Hoeffler 2000), personal hostilities and 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).

[93] This argument is put forth in Chapter 2 of the World Bank Policy Research Report *Breaking the Conflict Trap: Civil War and Development Policy* (2003).

[94] 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.

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. This argument is developed extensively by Sambanis (2001a; 2002b), so I will not present it here in any detail. Sambanis (2002b) explores the distinctiveness of ethnic war by determining if: (a) there exists a logical and empirical basis on which to classify the population of civil wars into distinct categories; and (b) if the ethnic war category differs systematically from other war types. 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). 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; Chandra 2000; 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 ethnic ties, then wars that are aimed to preserve these ties may also have something special about them. Empirically, there is support for this hypothesis. Sambanis (2002b) classifies wars according to the pattern of organization of groups or group interests and finds statistically significant differences across war types. In the popular press and the scholarly literature, we frequently see a distinction between "ethnic wars," "revolutions," or "coups." However, the CH model and other studies (e.g. Fearon and Laitin 2003) combine these categories, assuming that they all have the same determinants. But wars over self-determination constitute a distinct category, which suggests that the common practice of pooling all civil wars in cross-national studies may lead us to draw mistaken inferences about the causes of civil war.[95] The CH model can be usefully expanded to explain better under what conditions we are likely to get a secessionist as opposed to a revolutionary war.

Political Elites and Inequality

Two other variables that are not included in the CH model but appear to be relevant in explaining several—but not all—cases are the role of political elites, and the impact of regional inequality. I briefly look at some of the evidence on these variables and discuss their implications for the CH model. In discussing the impact of elites, I also turn to the relevant question of how rebel organizations are formed.

Leadership

In many case studies, particularly those taking a more historical approach, we find particularistic interpretations of events and an emphasis on the role of individuals in shaping the course of history. The role of political leaders like Churchill, Stalin or Hitler is prominent in the history of 1940s Europe. In studies of civil war, we typically get elite-focused explanations from constructivist authors who want to explain how groups—ethnic groups in particular—are mobilized for violence as a result of elite manipulation.

In our case study project, leadership sometimes comes up as an explanation of civil war. In Indonesia, Ross (2002, 12-14) points to the influence of GAM's charismatic leader Di Tiro (Ross 2002, 12-14). In Nigeria, Marwa's Koranic teaching mobilized 8,000-12,000 people during the Maitatsine rebellion (Zinn 2002). Predatory political and military elites in Burundi had a pervasive influence in that country's history (Ngaruko and Nkurunziza 2002). In the DRC, Mobutu's interest in creating an absolutist regime led him to undercut the strength of the army to preempt any challenges to his power (Ndikumana and Emizet

[95] For a detailed discussion and statistical results, see Sambanis 2002b.

2002, 7-8), thereby making rebellion easier in distant corners of this vast country.[96] In Kenya, a country with 42 tribes and ethnically-based institutions, there was no significant violence until the threat of a multiparty system led the authoritarian ruler to adopt a policy aimed at changing the demographic and ethnic balance of districts where he expected intense electoral competition. The government capitalized on unresolved land ownership issues to push for the expulsion of certain ethnic groups *en masse* from their homes in the Rift Valley and used ethno-religious militias to attack the political opposition (Kimenyi and Ndung'u 2002, 13).

The closest one comes to reading a perfectly elite-driven explanation of war is in Silber and Little's (1995) account of corruption and nationalism in Yugoslavia's leadership. Milosevic is attributed a particularly deleterious role in their narrative. But elites are also products of their environments and their ideology is bound to be shaped by lessons of history and past policy. Looking back at Yugoslav history, we find that both the Croatian and Muslim elites had been imprisoned and repressed during the Tito era as a result of their nationalist campaigns (Glenny 1999). The feelings of resentment that they harbored towards the Serbs derived at least partially from the treatment they had received from the Yugoslav state. One cannot safely say what Milosevic's historical impact might have been if Tito's regime had tried to resolve—rather than simply postpone addressing—the underlying ethnic tensions in Yugoslavia (Kalyvas and Sambanis 2003).

Most of our case studies explain elite actions as consequences of broader socio-economic conditions. The authors of the Burundi study point to a whole establishment (regional, tribal, and military elites) that benefited from excluding Hutus from government, but no single person is raised to the level of a Milosevic or a Tudjman. Even in DRC, where a perfect cleptocracy had been established by Mobutu, we do not see a focus on an elite-based explanation of the various bouts of civil war and the authors of that study explore the implications of resource-predation and ethnic antipathies to explain the organization of rebellion. In most civil war countries, elites lack what Gurr (2000) has called "authenticity"—i.e. legitimacy. If a country has had a history of violence and turmoil (e.g. Chad, Angola), it is hard to find established leaders who can draw on pre-existing loyalties and who have a track record that suggests that their values and preferences and those espoused by the majority of the population.

Even in cases where the narrative of elite-driven mobilization seems plausible, we still need to explain which groups can be mobilized and why and which individuals will choose to commit violence and why? Bosnia has been a case to which authors have applied the mobilization explanation, but a closer look at the pattern of violence reveals that most of the violence (particularly against civilians) was in fact perpetrated by organized militias, which were composed of criminal elements and paramilitaries (Kalyvas and Sambanis 2003). Those are groups that derive tangible benefits from their actions and we would not expect their motives for being mobilized to war to be the same with the motives of the general population.

There is a considerably large literature on the risks associated with the manipulation of ethnicity—i.e. ethnic affiliation offers a base of mass action that lends itself to mobilization by elites. Such mobilization is easier when ethnocultural identity is more salient than other types of socio-economic identities. Actual or expected group-level grievance increases ethnopolitical groups' interest in political protest and, the more salient the groups' sense of identity, the greater its cohesion and capacity to mobilize (Gurr 2000; Hardin 1995). At the same time, regime type mediates the impact of ethnicity on conflict and well-established democracies can reduce the risk of ethnopolitical action (Gurr 2000). Elites can capitalize on the availability of ethnic networks—i.e. ethnically defined groups that reduce transaction costs and uncertainty with respect to the enforcement of contracts—to induce a coordination process that leads to violence (Brass 1997, Hardin 1995). Such manipulation can take many forms, ranging from the organization of large-scale civil war, as in the case of Yugoslavia (Woodward 1995) to the tacit support of

[96] Herbst (2000) makes the theoretical argument that peripheral African rebellions last longer because African states must balance the benefits of a strong army that can defend the entire territory of the state against the potential costs of a possible challenge to the regime mounted by the army.

electoral violence as in the case of India (Wilkinson 2001). This literature, which has been influenced by constructivist theory on the forging of identity, differs from primordialism and its variants in that it does not view identity as inherently conflictual and focuses on social interactions and systems and patterns of identity evolution to explain violence (Anderson 1983; Brubaker 1995).

The mobilization perspective has been modeled formally by De Figueiredo and Weingast (1999). They posit that a rational public (composed of individual rational actors) may act inefficiently, yet rationally, and support civil war leaders who manipulate the public's latent fears of being victimized by an antagonistic ethnic group. Given asymmetrical information, leaders can exploit the uncertainty about how likely it is that the group will be victimized and can motivate the use of preemptive force. This explanation, however, has a significant problem in that it ultimately depends on the crucial assumption of a critical positive probability of victimization. Moreover, as the stakes of victimization rise relative to peace, the critical probability of victimization that would support violent mobilization can be close to zero. Thus, people allow themselves to be manipulated into using force based on their perceptions of the likelihood of victimization. By assuming an underlying positive level of fear and distrust, this explanation therefore relies heavily on what can loosely be described as a primordialist explanation of ethnic conflict. De Figueiredo and Weingast (1999) do not explain why the public does not doubt their leaders' intentions and do not consider the strong bias that exists in most societies against the use of mass violence. In the model, the public does not update its beliefs about the leaders' credibility and seems predisposed to violence. This modeling assumption may lead to an over-prediction of violent outcomes. If rebellion is so easy to motivate, then the distinction between the leaders' influence and the people's own proclivities becomes small and is, at best, a distinction between proximate and permissive causes of violence. Therefore, elite-driven explanations of war such as Bosnia, must be interpreted within the context of a history of ethnic violence and prior conflict. Without the memories of World War II atrocities between Chetnicks and the Ustace, how would Muslims and Croats have developed the expectation that they might be ethnically cleansed by the Serbs? Why would this be an even remotely probable outcome? Even if Serb leaders had made such statements publicly, why would they have been credible? It is the mixture of memories of old conflicts and new manipulation that best explains how ethnic groups and individuals can be mobilized to use force.

Formation and Growth of the Rebel Organization

The question of who fights and why leads me to the question of how do rebel organizations grow? One of the most important contributions of the case study project is that it provides us with systematically collected evidence on the formation and growth of insurgent groups in several civil war countries. This is a particularly important contribution as the dynamics of rebel organization and recruitment are an understudied topic in the literature.

What we find through the case studies is that most rebel organizations start as very small insurgencies and grow, in some cases, to large armies. Few are the cases where the parties had access to an established large military force at the time of outbreak of hostilities. This typically happens if the national army split between warring groups as in the case of Bosnia. In other countries, we frequently observe rebel organizations that grow from a handful of men to thousands of trained fighters. In Colombia, the National Liberation Army (ELN) grew from 30 men in 1965 and 270 in 1973 to an army of 4,500 in 2000 (Colombia case study). In Azerbaijan, the rebel organization in Nagorno-Karabakh grew from 1,000 in 1988 to 21,000 in 1992-94 (BKZ 2002). In Indonesia's Aceh province, GAM, which started with 24 members in 1976 and had virtually disappeared by the early 1980s, grew to a force of 2-3,000 and 24,000 militia in 2001 (Ross 2002).

The CH model would benefit by considering more closely how rebel organizations develop. Is it the case that they evolve from a political party, from nationalist non-violent movement, from a professional association or union, or from a criminal network? According to Gurr (2000), ethnopolitical conflict is a function of the salience of ethnocultural identity for leaders and followers; the extent to

which groups have collective incentives for political action; the extent of the group's capacities for collective action; and the availability of opportunities in the group's political environment. One important component of group capacities is the number and scope of "preexisting organizations" as sustained interaction fosters cohesion and group solidarity. Established political organizations such as political parties or unions can mobilize members at lower cost. Greater group cohesion reduces the costs of collective action.

In several of the countries in our project, old political parties or ethnic and political organizations were used as a springboard for the organization of insurgent movements. In Burundi, the army was "a permanent threat" that allowed mass mobilization for violence (Ngaruko and Nkurunziza 2002, 36). Hutu groups from the 1960s and 1970s were mobilized in the violence of 1990, but new ones were also formed after the violence started (PALIPEHUTU, FROLINA, ULINA, FDD, FLN). In Lebanon, the various militias were typically associated with a pre-existing political party or religious group (Makdisi and Sadaka 2002). However, in other countries, the rebel movement was developed "from scratch." In Northern Ireland, a clearly defined ethnic base from which to recruit may have helped the IRA in its initial phases. According to Woodwell (2002, 21), the IRA represented (or claimed to represent) one social group and it recruited members from the predominantly working class Catholic community.

To date, there is no conclusive empirical evidence on the significance of pre-existing organizations in supporting insurgent movements. Cases such as Northern Ireland and Lebanon may suggest a different trend that points to the use of ethnicity or religion as the organizing principle of most rebel movements. Indeed, even in wars where an "ethnic" agenda may not be readily visible (e.g. Angola since 1992), rebel groups may be organized along ethnic lines. "All the rebellions and civil wars in the Congo drew their support primarily from a number of dominant ethnic groups. For example, the Katanga secession and Shaba wars were led by the Lunda, Ndembu, and Yeke ethnic groups. Similarly, the Kwilu rebellion involved Mulele's Mbunda and Gizenga's Pende ethnic groups while the 1996-97 Kabila-led rebellion drew its initial combatant force among the Banyamulenge" (Ndikumana and Emizet 2002, 30). But a closer test of the use of pre-existing political organizations for rebellion has not yet been done. Preliminary evidence on the escalation of self-determination movements shows no significant association between non-violent political associations in favor of greater self-determination and the outbreak of secessionist war (Sambanis and Zinn 2002).[97]

The case studies are also very useful in mapping out the various ways through which rebel organizations obtain financing. Financing is usually supplied through the ways suggested by the CH model: extraction of rents from local populations, direct and indirect taxation, looting and crime, resource predation and trade, funding from foreign governments or diasporas. Another important component of how rebel groups grow, however, is the recruitment of soldiers, which is in some cases coerced. This is an important observation that falsifies the CH model's theoretical arguments about rebel demand and supply because it undermines one or more of the model's observable implications: we do not need a low opportunity cost for violence if recruitment is forced.

Forced recruitment was widely practiced by GAM in Indonesia in 1999-2000 (Ross 2002), by the EAM-ELAS communist guerillas in Greece in the 1940s (Glenny 2001); by the LRA in Uganda in the 1990s. In Burundi, rebel groups recruited children by force (Kenyan street children were purchased at the price of $500 for 150 boys, according to Ngaruko and Nkurunziza 2002, 31). In Mozambique, Frelimo used repression, imprisonment, re-education and indoctrination camps to increase its forces (Weinstein and Francisco 2002, 8), while Renamo "used force at every point for almost every purpose—for conscription, the collection of resources, "political" mobilization, and control" (Weinstein and Francisco (2002, 4).

[97] More than 300 self-determination movements were identified, both violence and non-violent. Few movements become violent over time.

Apart from coercion and resource predation, why would an ordinary citizen join a rebel organization? The CH model only considers economic incentives and downplays the role of political ideology and psychological factors. However, several of our case studies indicate that both ideology and psychology influence the decision to rebel. Violence creates anger and fear that mobilizes potential recruits. This partly explains the growth of the PIRA (Woodwell 2002) and the mass support for the GAM in Aceh after the government cracked down on their revolt in 1991 and punished the civilian population (Ross 2002). The psychological perspective is well-articulated by Petersen (2002), whose work is important as a way to bridge the micro-level motivations for violence with the macro-level analysis of the CH model. The focus on the emotional foundations of violence is also important because it undermines the economists' argument that criminal and political violence are the same simply because they both stem from a decision-making process that seeks to maximize utility economically defined.[98]

Petersen (2002) develops four complementary models of ethnic violence, each characterized by a dominant emotion: fear, hatred, resentment, or rage. The first three emotions are instrumental and are used to develop support for the pursuit of an individual goal, such as greater security, justice, or wealth. These emotions are triggered by structural change. The theory, therefore offers us a mechanism through which political instability or external shock can increase the risks of violence: this happens due to the emotions that structural change stirs among individuals and groups. The emotional content of action does not rob it of cognitive content. Each target of an emotional response is selected according to information about the consequences of structural change. Thus, the fear model predicts that ethnic violence will be targeted against the group representing the biggest threat; the hatred model predicts that violence will be targeted against a group that has been attacked in the past with similar justification; while the resentment model—perhaps the most interesting one of the three—predicts that the target will be the group that is perceived to be higher in the ethnic hierarchy *and* that can be subordinated through violence. The rage model stands in contrast to the previous three since emotion precedes cognition hence targets are selected simply according to the desire to lash out. When an individual is enraged, s/he will suffer cognitive distortions that influence the selection of targets of violence and targets may be substitutable since the justification for why they are selected will be incoherent. This sounds close to what Kalyvas (2003) calls the "Schmidttian" view of ethnic violence—where targets of violence are perfectly substitutable.

While the CH model is not as nuanced as Petersen's theory of ethnic grievance, it does incorporate variables that purport to measure objective grievance (ethnic dominance, level of democracy). Some of the empirical results of the CH model offer support to Petersen's theory. The positive and significant association of ethnic dominance and civil war may be seen as supportive of the fear and resentment theories. But the CH results on dominance must be further refined according to the ways suggested in this paper, and they are not conditional on political-structural change of the sort that Petersen considers as the trigger for violence. It would be a simple matter to construct an interaction variable that measures the effect of ethnic dominance in countries undergoing structural change and this can give the CH model a firmer grasp of the mechanism through which political instability influences civil war risk.

But the two theories clash with respect to the role of economic opportunity in explaining rebellion. On the one hand, Petersen's theory appears incomplete in that it explains the demand (motive) for ethnic violence, but does not explain other forms of violence of equal magnitude (class revolutions) or, more importantly, the supply of rebellion. The CH model gives a compelling analysis of the significance of the financing constraint faced by rebel organizations and convinces the reader that, regardless of underlying motives, a civil war will not occur as long as insurgents do not surpass that constraint.[99] Thus, Petersen's (2002) model may give us the necessary, but not the sufficient conditions for rebellion. But the CH

[98] Recently, economic theories have begun to model identity as a component of individual utility and are therefore better able to explain actions dictated by one's membership in an identity group as opposed to actions dictated by individual interests more narrowly defined. See, Akerlof and Cranton (2000) and Dickson and Scheve (2002).
[99] This is the same argument put forth by Fearon and Laitin (2003), only in their terminology the "financing constraint" is labeled "insurgent technology."

model can benefit by exploring further the origins of individual motivations for political violence. The authors seemed too eager and too quick to dismiss the role of personal animosity, political repression, and group grievance as potential explanations of violence.

Inequality

The discussion of the emotional basis for rebellion brings me to the question of inequality and how it affects the risk of war. The CH model and others have looked at the effects of economic inter-personal inequality on civil war, but no conclusive evidence has been found. Some authors argue that horizontal inequality increases the risk of war.[100] Others distinguish between income and asset inequality and find disputes over land rights to be a salient cause of ethnic violence (Kimenyi and Ndung'u 2002; Bates 1989).[101] 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 (Leys 1975). 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 critical in Casamance since the start of large-scale expropriation of indigenous land in 1979 (Humphreys and Mohamed 2002).

CH find income inequality (Gini coefficient) to be insignificant as a determinant of civil war. Several case studies seem to confirm that this is not an artifact of poor data.[102] 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. Why would inter-personal inequality fuel civil war, in particular 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.[103] Indeed, inter-personal inequality may be a variable that might explain why we would get revolutionary and not secessionist war. 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. Fiscal transfers and redistribution of wealth was the payoff for ethno-political dominance by the South in the Ivory Coast (Koidou and Azam 2002). The regional dimension here may be critical: it is not sufficient to focus on group inequality, but also inter-regional inequality. In Burundi, one of the poorest countries in the world with a per capita income of $200 in 1985 and just $110 in 1999, poverty affects Hutu and Tutsi relatively equally. Ngaruko and Nkurunziza (2002, 7) cite evidence from Ndimira (2000) that shows roughly equal levels of Gini coefficients for both groups. However, the Bururi region of Burundi has long been dominant in terms of power and wealth, fostering resentment and hatred in other regions.

Our case studies offer several examples of violence driven by inter-regional inequality. In Senegal, income per capita was low as compared to the average for both civil war and non-civil war countries—hence the CH model would correctly estimate a high risk of war. But it was inequality across regions that mostly explained *where* the war actually broke out (Humphreys and Mohamed 2002). Inequality in that case also had a political component—Casamance was politically more distant from the center of power than other regions. Makdisi and Sadaka (2002, 21) tell a similar story for Lebanon, where regional inequalities in economic development were critical in explaining where and why the violence broke out.

There is substantial evidence to suggest that we must shift our focus from the country level to the (subnational) region. Regional inequality is inevitably neglected in the CH model and other studies that

[100] A comparative case-study by Frances Stewart argues that complex humanitarian emergencies occur where group identity coincides with horizontal inequality that is widening, over a number of dimensions.
[101] Bates (1989) argues that land disputes are at the core of conflict in Kenya between the Kikuyu and other groups.
[102] Cross-national measures of income inequality are notoriously difficult to collect and currently available measures of the Gini coefficient have been criticized as wildly inaccurate. For a recent attempt to better measure world inequality using high-quality data, see Milanovic (2003).
[103] This argument would suggest another basis on which the unit homogeneity assumption is not met in the CH dataset (if interpersonal inequality had a different effect on different types of civil wars).

focus on countries as the unit of analysis. To develop better predictions of where a war is likely to occur, our unit of analysis must be the region. This is especially true for wars over self-determination where 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 instead, or the entire country can be considered a region. Such a study is currently being developed by Milanovic and Sambanis (2003). It is the first to apply the logic of models of war onset to a unit of analysis smaller than a country but larger than a single ethnic group.[104]

6. CONCLUSION

This study has shown several ways in which a comparative case study project can complement and improve a large-N research design. Case studies can help correct measurement error and improve the conceptualization and measurement of proxy variables used to test theoretically-derived hypotheses in quantitative studies. Case studies can also help us build better theoretical models.

The World Bank-Yale University case study project covered twenty countries and approximately thirty wars. The case studies suggest a number of improvements and additions to the CH model. First, we must define and measure civil war better. Many wars are omitted in the CH dataset, whereas other wars are included for unclear reasons. This measurement problem reduces the efficiency of empirical estimates and the certainty of our causal inferences.

Second, some of the hypotheses that are derived from the CH model—e.g. the hypothesized link between ethnicity or democracy and civil war—must be refined and clarified so that the model tests clearly-defined theoretical propositions. Ambiguities in the operationalization of these variables create uncertainty as to what it is that they actually measure, so it is difficult to interpret the model's results with reference to the literatures on ethnic conflict and political institutions and nationalism.

Third, the alternative measures and model specifications suggested by the case studies imply the need for different estimation methods. Some recommendations for different estimators were made in this paper. Some of the procedures that were recommended were focused on the addition of country-specific effects, time-decaying functions, and controlling for spatial dimensions of violence and neighborhood effects.

Fourth, the cases do suggest that the assumption of unit homogeneity that underlies the CH model may be challenged on a number of grounds. Further empirical testing is necessary to explore the assumption of unit heterogeneity among cases of large-scale organized political violence. As our models of civil war become more theoretically informed and the regression equations more fully-specified, it may be more straight-forward to test the unit homogeneity assumption. One way to do this is to further explore some of the selection effects highlighted in this paper. In richer nations, the state may be stronger and political institutions stable, all factors that can reduce the risk of civil war. In poorer states, political institutions will be weaker and less able to manage inter-ethnic conflict. Currently, the CH model's predictions seem to be that political variables "do not matter" for civil war. But the influences between economic and political variables must be disentangled before this causal inference can be drawn from the data.

Finally, it is worth reminding the reader that the case study project was not designed to test the CH model. Hypothesis testing was done through econometric methods, using a large cross-sectional, time-series dataset. The case studies were a secondary line of inquiry designed to illuminate some of the pathways through which independent variables influence the dependent variable and to explore interactions among the independent variables. A key conclusion of the case studies is that, while the CH model accurately describes some associations that seem to be significant in explaining many of the wars (and no-wars) in

[104] Group-based studies also exist and have some advantages over other approaches (see Fearon and Laitin 1999), but the paucity of data at the group level has precluded the estimation of a fully-specified model of war onset.

our sample, the causal mechanisms that are implicit in the CH analysis are frequently incorrect or poorly understood. In several cases, the model correctly predicts an outcome for the wrong reasons; in other cases, the model fails to accurately predict a war because it has not properly specified the underlying relationships. Through the case studies, we have developed a more nuanced appreciation of the conditions under which different variables exert a significant influence on the outbreak of civil war.

What becomes clear from the case study project is that it is difficult to see "greed" and "grievance" as competitive explanations of rebellion. Greed and grievance are often alternative interpretations of the same phenomenon; they are shades of the same problem. Indeed, we often see more political greed and economic grievance than the other way around. If political institutions can reduce grievances and if economic variables influence the stability of political institutions, then economic variables indirectly affect "grievance" factors in the CH model. And if state failure or government illegitimacy turns domestic politics into a near-anarchic world, then what CH call "greed" is really synonymous to the pursuit of survival. Civil war may be a response to either "greed" or "grievance" but most often they will be the result of both. We must now move beyond the greed-grievance distinction to explain why some countries are more prone to civil war than others.[105]

[105] An "industrial organization" theory of rebellion should be able to explain not only why violence is used to redress grievance, but also why certain opportunity structures give rise to full-blown rebellion between a government army and insurgent groups whereas in other cases conflict may take other forms, such as riots, peaceful protest, or organized crime.

Bibliography

Akerlof, George and Rachel Kranton. 2000. "Economics and Identity." *The Quarterly Journal of Economics* 115 (3): 715-773.

Alesina, Alberto and Enrico Spolaore. 1997. "On the Number and Size of Nations." *Quartely Journal of Economics* 112: 1027-1056.

Anderson, Benedict. 1983. *Imagined Communities: Reflections on the Origins and Spread of Nationalism.* London: Verso.

Andrienko, Yuri and Louise Shelley. 2002. "Crime, Violence, and Conflict: Russia Case Study." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Azam, Jean-Paul and Constant Koidou 2003. "Rising Threats: Containing Political Violence in Côte d'Ivoire." Yale University-World Bank Case Study Project on thre Political Economy of Civil Wars.

Bates, Robert H. 1989. *Beyond the Miracle of Markets: The Polictical Economy of Agrarian Development in Kenya,* Cambridge University Press.

Beck, Nathaniel, Jonathan Katz, and Richard Tucker. 1998. Taking Time Seriously: Time-Series-Cross-Section Analysis with a Binary Dependent Variable. *American Journal of Political Science*, 42 (2):1260-1288.

Berdal, Mats and D.M. Malone (eds.) (2000) *Greed and Grievance*. Boulder and London: Lynne Rienner.

Brass, Paul R. 1997. *Theft of an Idol: Text and Context in the Representation of Collective Violence.* Princeton, NJ: Princeton University Press.

Brass, Paul R. 1985. *Ethnic Groups and the State.* London: Croom-Helm.

Brito, D. and M. Intriligator. 1989. "An Economic Model of Guerrilla Warfare." *International Transaction* 15 (3), 319-29.

Brown, Michael. 1996 *International Dimensional of Internal Conflict.* Cambridge, MA: MIT Press.

Brubaker, Rogers and David D. Laitin. 1998. "Ethnic and Nationalist Violence," *Annual Review of Sociology* 24: 423-52.

Brubaker, R. 1995. "National minorities, nationalizing states, and external national homelands in the new Europe." *Daedalus* 124 (2): 107-32.

Chandra, Kanchan. 2000. Why Ethnic Parties Succeed. Ph.D. Dissertation, Harvard University.

Collier, David. 1993. "The Comparative Method." In Ada Finifter, ed., *Political Science: The State of the Discipline II.* Washington, D.C.: American Political Science Association. Pp. 105-119.

Collier, Paul, Lani Elliott, Havard Hegre, Anke Hoeffler, Marta Reynal-Querrol, and Nicholas Sambanis. 2003. *Breaking the Conflict Trap: Civil War and Development Policy* World Bank Policy Research Report (forthcoming)

Collier, Paul and Anke Hoeffler. 2001. "Greed and Grievance in Civil War," World Bank Policy Research Working Paper No. 2355 (October)

Collier, Paul and Anke Hoeffler. 1998. "On the Economic Causes of Civil War." *Oxford Economic Papers* 50: 563-73.

Collier, Paul, Anke Hoeffler, and Mans Soderbom. 2001. "On the Duration of Civil War." Paper prepared for presentation at the World Bank-UC Irvine Conference on Civil War Duration and Post-Conflict Peacebuilding, Irvine, CA, May 18-20, 2001.

Collier, Paul. 2000a. "Rebellion as a Quasi-Criminal Activity." *Journal of Conflict Resolution* 44 (6): 838-52.

Collier, Paul. 2000b. "Policy for Post-Conflict Societies: Reducing the Risks of Renewed Conflict." Unpublished paper. Washington DC: The World Bank (March 17).

Darden, Keith. 2002. "The Scholastic Revolution." Mimeo, Yale University.

Davies, Victor A. B. and Abie Fofana 2002. Diamonds, Crime and Civil War in Sierra Leone. Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Degenhardt, Henry W., ed. 1988. *Revolutionary and Dissident Movements.* London: Longman Publishers.

De Figueiredo Rui and Barry Weingast. 1999. The Rationality of Fear: Political Opportunism and Ethnic Conflict. In *Civil Wars, Insecurity, and Intervention*, edited by Barbara Walter and Jack Snyder. New York: Columbia University Press.

Dickson, Eric and Kenneth Scheve. 2002. "Social Identity, Political Speech, and Electoral Competition." Mimeo (August 14 draft).

Doyle, Michael W. and Nicholas Sambanis. 2003. "Alternative Measures and Estimates of Peacebuilding Success." Mimeo, Department of Political Science, Yale University.

Doyle, Michael W. 2002. "Strategy and Transitional Authority." In Stephen John Stedman, Donald Rothschild, and Elizabeth M. Cousens, eds., *Ending Civil Wars*. Boulder, CO: Lynne Rienner.

Doyle, Michael W. 1997. "Authority and Elections in Cambodia." In Doyle, Michael W., Ian Johnstone, and Robert Orr, eds. *Keeping the Peace*. Cambridge: Cambridge University Press.

Duncan, Imani and Michael Woolcock. 2002. "Arrested Development: The Political Origins and Socio-Economic Foundations of Common Violence in Jamaica." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Eckstein, Harry. 1975. "Case Study and Theory in Policy Science." In Fred Greenstein and Nelson Polsby, eds., *Handbook of Political Science*, Vol. 7, *strategies of Inquiry*. Reading, Mass.: Addison-Wesley. Pp. 79-137.

Elbadawi, Ibrahim A., Ali Ali, and Atta al Battahani. 2002. "On the Causes, Consequences and Resolution of the Civil War in Sudan." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Elbadawi, Ibrahim A. and Nicholas Sambanis. 2000. "Why Are There So Many Civil Wars in Africa? Understanding and Preventing Violent Conflict." *Journal of African Economie*, 9 (3): 244-269.

Elbadawi, Ibrahim A. and Nicholas Sambanis. 2002. "How Much War Will We See? Explaining the Prevalence of Civil War." *Journal of Conflict Resolution* 46 (3): 307-334.

Elbadawi, Ibrahim A. and Nicholas Sambanis. 2000. "External Intervention and the Duration of Civil Wars." *World Bank Policy Research Working Paper 2433*.

Emizet, Kisangani. 2000. "The Massacre of Refugees in Congo: A Case of UN Peacekeeping Failure and International Law," Journal of Modern African Studies, 38 (2): 163-202.

Esty, Daniel C., Jack Goldstone, Ted Robert Gurr, Pamela T. Surko, and Alan N. Unger. 1995. *Working Papers: State Failure Task Force Report*. Mc:Lean, VA: Science Applications International Corporation.

Fearon, James D. 1991. "Counterfactuals and Hypothesis Testing in Political Science." *World Politics* 43: 169-195.

Fearon, James D. 1995. "Rationalist Explanations for War." *International Organization* 49 (3): 379-414.

Fearon, James D. 2001. "Why do some civil wars last longer than others?" Presented at the World Bank Conference on "Civil Wars and Post-War Transitions," UC Irvine, May 18-20, 2001.

Fearon, James D. and David Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *American Political Science Review* 97 (1): 91-106.

Fearon, James and Laitin. 1999. "Weak States, Rough Terrain, and Large - Scale Ethnic Violence Since 1945." Unpublished Manuscript, Stanford University.

Gambetta, Diego. 1993. *The Sicilian Mafia: The Business of Private Protection*. Cambridge, MA: Harvard University.

George, Alexander L. and Timothy J. McKeown. 1985. "Case Studies and Theories of Organizational Decision Making." *Advances in Information Processing in Organizations* 2: 21-58.

George, Alexander L. 1979. "Case Studies and Theory Development: The Method of Structured, Focused Comparison." in Paul Gordon Lauren, ed., *Diplomacy: New Approaches in History, Theory, and Policy*. New York: Free Press.

Gleditsch, Kristian. 2003. "Transnational Dimensions of Civil War," Unpublished paper, University of California San Diego (January).

Gleny, Misha. 1999. *The Balkans: Nationalism, War, and the Great Powers, 1804-1999*. Penguin Books.

Green, Donald P. and Rachel L. Seher. 2002. "What Role Does Prejudice Play in Ethnic Conflict?" Unpublished paper, Yale University (September 5 version).

Grossman, Herschel I. 1991. "A General Equilibrium Model of Insurrections." *American Economic Review* 81: 912-21.

Grossman, Herschel I. 1995. "Insurrections." In K. Hartley and T. Sandler, eds., *Handbook of Defense Economics*, Vol. 1, Elsevier Science BV. 191-212

Gurr, Ted Robert. 1993. *Minorities at Risk.* Washington, DC: US Institute of Peace

Gurr, Ted Robert. 2000. *Peoples Versus States: Minorities at Risk in the New Century.* Washington, DC: US Institute of Peace.

Gurr, Ted Robert. 1970. *Why Men Rebel*. Princeton: Princeton University Press.

Hardin, Russell. 1995. *One for All: The Logic of Group Conflict.* Princeton: Princeton University Press.

Hayes, Bernadette and Ian McAllister. 2001. "Sowing Dragon's Teeth: Public Support for Political Violence and Paramilitarism in Northern Ireland." *Political Studies* 49, 901-922.

Hechter, Michael. 2001. *Containing Nationalism.* Oxford: Oxford University Press.

Hechter, Michael. 1999. *Internal colonialism: the Celtic fringe in British national development.* New Brunswick, N.J.: Transaction Publishers.

Hegre, Havard, T. Ellingsen, S. Gates, and N.-P. Gleditsch. 2001. Toward a Democratic Civil Peace? Democracy, Political Change, and Civil War, 1816-1992. *American Political Science Review* 95: 33-48.

Hegre, Havard. 2003. "Disentangling Democracy and Development as Determinants of Armed Conflict." Presented to the Annual Meeting of International Studies Association, Portland, OR, February 27.

Herbst, Jeffrey. 2000. *States and Power in Africa*. Princeton: Princeton University Press.

Heston, Alan and Robert Summers. 1991. "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950-1988." *Quarterly Journal of Economics* (May) 1991, pp. 327-368. Data-file (Version 5.6, released January 1995) http://cansim.epas.utoronto.ca:5680/pwt/pwt.html).

Heston, A., R. Summers and B. Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), October 2002. http://pwt.econ.upenn.edu/

Hirschleifer, Jack. 1989. "Conflict and Rent Seeking Functions: Ratio vs. Difference Models of Relative Success." *Public Choice* 63 (2): 101-12.

Hirschleifer, J. 1995. "Theorizing about conflict." In *Handbook of Defense Economics*, edited by K. Hartley and T. Sandler, vol. 1. Amsterdam: Elsevier, pp. 165-92

Horowitz, Donald, L. 1991. "Self-Determination: Politics, Philosophy, and Law." In Ian Shapiro and Will Kymlicka, *NOMOS* XXXIX, New York: NYU Press

Horowitz, Donald L. 1985. *Ethnic Groups in Conflict.* Berkeley and Los Angeles: University of California Press.

Huber, John D. 1996. *Rationalizing Parliament: Legislative Institutions and Party Politics in France.* New York: Cambridge University Press.

Humphreys, Macartan and Habaye ag Mohamed. 2002. "Senegal and Mali." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Iatrides, John O. 1993. "The Doomed Revolution: Communist Insurgency in Postwar Greece." In *Stopping the Killing: How Civil Wars End,* edited by Roy Licklider. New York: NYU Press

Jaggers, Keith and Ted Robert Gurr. 1996. POLITY III: Regime Change and Political Authority, 1800-1994. [computer file] (Study #6695). 2nd ICPSR version. Boulder, CO: Keith Jaggers/College Park, MD: Ted Robert Gurr [producers], 1995. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [distributor], 1996.

Jones-Luong, Pauline. 2002. *Institutional change and political continuity in Post-Soviet Central Asia : power, perceptions, and pacts*. Cambridge, U.K.; New York: Cambridge University Press.

Kalyvas, Stathis N. 2003. "What is Political Violence? On the Ontology of Civil War." Forthcoming in *Perspectives on Politics*.

Kalyvas, Stathis N. and Nicholas Sambanis. 2002. "Bosnia's Civil War: Origins and Dynamics." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Kasfir, Nelson. 1979. "Explaining Ethnic Political Participation." *World Politics* 31 (3): 365-88.

Kaufmann, Chaim. 1996. "Possible and Impossible Solutions to Ethnic Conflict." *International Security* 20 (4): 136-175.

Kaufmann, Chaim. 1998. "When All Else Fails." *International Security* 23 (2): 120-156.

Keesings' Record of World Events. http://keesings.gvpi.net/keesings/lpext.dll?f=templates&fn=main-h.htm&2.0/

Kelley, Kevin. 1988. *The Longest War: Northern Ireland and the I.R.A.* Zed Books Ltd., London.

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 the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

King, Gary. 1989. Unifying Political Methodology: The Likelihood Theory of Statistical Inference. New York: Cambridge University Press.

King, Gary and Langzhe Zheng. 2001. "Improving Forecasts of State Failure." *World Politics* 53 (4): 623-658.

King, Gary, Robert O. Keohane and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton: Princeton University Press.

Kocher, Matthew. 2003. "Human Ecology and Civil War." Ph.D. Dissertation. University of Chicago.

Kollman, Ken, John Miller, Scott Page. 1996. "On States as Policy Laboratories," Unpublished paper, University of Michigan.

Konrad, Kai and Stergios Skaperdas. 1999. "The Market for Protection and the Origin of the State." CEPR and University of California, Irvine, Working paper.

Laitin, David D. 1999. "Somalia: Civil War and International Intervention," in Walter Barbara and Jack Snyder, eds., 1999, *Civil Wars, Insecurity, and Intervention.* New York: Columbia University Press.

Laitin, David D. and Dan Posner. 2001. "The Implications of Constructivism for Constructing Ethnic Fractionalization Indices." Mimeo.

Lake, David and Donald Rothschild. 2001. "Political Decentralization and Civil War Settlements." Paper prepared for presentation at the APSA.

Lake David A. and Donald Rothschild. eds. 1998. *The International Spread of Ethnic Conflict: Fear, Diffusion, and Escalation.* Princeton, NJ: Princeton University Press.

Lake, David A. and Donald Rothschild. 1996. "Containing Fear: The Origins and Management of Ethnic Conflict." *International Security* 21 (2), 41-75.

Leys, Colin. 1975. *Underdevelopment in Kenya. The Political Economy of Neo- Colonialism.* University of California Press. Berkeley and Los Angeles, California.

Lichbach, Mark I. 1987. "Deterrence or Escalation? The Puzzle of Aggregate Studies of Repression and Dissent." *Journal of Conflict Resolution* 31 (2): 266-297.

Licklider, Roy. 1988. "The Power of Oil: The Arab Oil Weapon and the Netherlands, the United Kingdom, Canada, Japan, and the United States. " *International Studies Quarterly* 32 (2), pp. 205-226.

Licklider, Roy. 1995. "The Consequences of Negotiated Settlements in Civil Wars, 1945–1993." *American Political Science Review* 89 (3), 681-90.

Licklider, R. 1993. *Stopping the Killing.* New York: New York University Press.

Lieberson, Stanley. 1991. "Small N's and Big Conclusions: An Examination of the Reasoning in Comparative Studies Based on a Small Number of Cases," *Social Forces*, 70 (Dec), 307-320.

Lijphart, Arendt. 1969. "Consociational Democracy." *World Politics*. 21 (2): 207-25.

Lijphart, A. 1984. *Democracies: Patterns of Majoritarian and Consensus Government in Twenty-One Countries*. New Haven, CT: Yale University Press.

Lijphart, Arendt. 1977. *Democracy in Plural Societies*, New Haven, CT: Yale University Press.

Linz, Juan. 1996a. "The Perils of Presidentialism." In Larry Diamond and Marcg F. Plattner, eds., *Global Resurgence of Democracy.* 2nd edition, Baltimore: Johns Hopkins University Press.

Linz, Juan. 1996b. "The Virtues of Parliamentarianism" in Larry Diamond and Marcg F. Plattner, eds., *Global Resurgence of Democracy.* 2nd edition, Baltimore: Johns Hopkins University Press.

Lowi, Miriam R. 2002. "Algeria, 1992-2002: Toward a Political Economy of Violence." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Luebbert, Gregory M. 1987. "Social Foundations of Political Order in Interwar Europe." World Politics 39 (July): 449-78.

Lund, Michael S. 2002. "Explaining the Yugoslavia Exception: Why Macedonia Has Not Erupted into Inter-Ethnic War." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Makdisi, Samir and Richard Sadaka 2002. "The Lebanese Civil War: Background, Causes, Duration and Post Conflict Trends." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Marshall, M. G. and K. Jaggers. 2000. Polity IV Project. www.bsos.umd.edu/cidcm/inscr/polity.

Martinez, Luis. 1998. *The Algerian Civil War, 1990-1998*. New York, NY: Columbia University Press.

McAdam, Doug, Sidney Tarrow, and Charles Tilly. 2001. *Dynamics of Contention*. Cambridge: Cambridge University Press

Milanovic, Branko. 2003. "Worlds Apart: International and Global Inequality, 1950-2000." World Bank Working Paper.

Milanovic, Branko and Nicholas Sambanis. 2003. "Explaining the Demand for Sovereignty." Prepared for Presentation at the Annual Meeting of the American Political Science Association, August-September 2003.

Minahan, James. 1996. *Nations Without States: A Historical Dictionary of Contemporary National Movements.* London: Greenwood Press.

Minorities at Risk Project. [Data Files] http://www.cidcm.umd.edu/mar.

Minority Rights Group. 1997. *World Directory of Minorities.* Chicago: St. James Press.

Mueller, John. 2000. "The Banality of Ethnic War." *International Security* 25 (1): 42-70.

Mueller, John, 2001. "The Remnants of War: Thugs as Residual Combatants." Mimeo. Ohio State University.

Murdoch, J. C. and T. Sandler, 2002. "Economic Growth, Civil Wars, and Spatial Spillovers." *Journal of Conflict Resolution* 46(1).

Ndikumana, Léonce and Kisangani Emizet. 2002. "The Economics of Civil War: The Case of the Democratic Republic of Congo." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Ndimira, Pascal-Firmin. 2000. "Dimension économique de la résolution du conflit burundais", presented at the Forum sur la Dimension Economique de la Résolution du Conflit Burundais, Bujumbura, Burundi

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.

Oates, Wallace E. 1972. *Fiscal Federalism.* New York: Harcourt Brace Jovanovich.

Petersen, Roger D. *Understanding Ethnic Violence: Fear, Hatred, and Resentment in Twentieth-Century Eastern Europe.* Cambridge: Cambridge University Press, 2002.

Polsby, Nelson W. 1982. *What If? Explorations in Social-Science Fiction.* Lexington, MA and Brattleboro, VT: The Lewis Publishing Company.

Popper, Karl R. 1968. *The Logic of Scientific Discovery*. New York: Harper and Row.

Posner, Dan. 2000. "Ethnic Fractionalization in Africa: How Should it be Measured? What Does it Explain About Economic Growth? Paper presented to the World Bank Development Research Group Seminar, 29 March.

Prunier, Girard. 1995. *The Rwanda Crisis*. New York: Columbia University Press.

Pzeworski, 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.

Przeworski, Adam and Henry Teune. 1970. *Logic of Comparative Social Inquiry*. Malabar, FL: Krieger Publishing.

Przeworski, Adam and James R. Vreeland. 2002. A Statistical Model of Bilateral Cooperation. *Political Analysis* 10.

Ragin, Charles. 1987. *The Comparative Method: Moving beyond Qualitative and Quantitative Strategies.* Berkeley: University of California Press.

Regan, Patrick M. 2002. "Third Party Interventions and the Duration of Intrastate Conflicts." *Journal of Conflict Resolution* 46 (1): 55-73.

Regan, Patrick M. 2000. *Civil Wars and Foreign Powers.* Ann Arbor, MI: Michigan University Press.

Reynal-Querol, Marta. 2002. "Ethnicity, Political Systems, and Civil War." *Journal of Conflict Resolution* 46 (1): 29–54.

Riker, William H. 1985. "Comments on 'Case Studies and Theories of Organization Decision-Making.'" In *Advances in Information Processing in Organizations: A Research Annual.* Greenwich, Conn.: JAI Press.

Riker, William H. 1964. *Federalism: Origin, Operation, Significance*. Boston: Little, Brown.

Robinson, William S. 1990. "Ecological Correlations and the Behavior of Individuals." *American Sociological Review* 15: 351-357.

Ross, Michael L. 2002. "Resources and Rebellion in Aceh, Indonesia." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Ross, Michael L. 2000. "Does Oil Hinder Democracy?" *World Politics* 53 (April): 325-61.

Rothschild, Donald. 2002. "Settlement Terms and Post-agreement Stability." In Stephen Stedman, Donald Rothschild and Elizabeth Cousens, eds. *Ending Civil Wars.* Boulder, CO: Lynne Rienner.

Rothschild, Donald. 1986 "Interethnic Conflict and Policy Analysis in Africa." *Ethnic and Racial Studies* 9 (1): 66-86.

Rubio, Mauricio. 1999. "Crimen e Impunidad. Precisiones sobre la Violencia." Bogota: CEDE-Tercer Mundo. Pp 147-148

Sambanis, Nicholas. 2003. "The Causes of Genocide and Civil War: Are they More Similar Than We Thought?" Mimeo, Yale University (April 11 version).

Sambanis, Nicholas. 2002a. "A Review of Recent Advances and Future Directions in the Literature on Civil War." *Defense and Peace Economics* 13 (2): 215-243 (June 2002).

Sambanis, Nicholas. 2002b. "What Is A Civil War? Conceptual and Empirical Complexities of an Operational Definition." Mimeo, Yale University (October 17).

Sambanis, Nicholas. 2002c. "Do Ethnic and Non-Ethnic Civil Wars Have the Same Causes? Organization and Interests in Ethnic Insurgency." Mimeo, Yale University (October 17 version).

Sambanis, Nicholas. 2001a. "Do Ethnic and Non-Ethnic Civil Wars Have the Same Causes? A Theoretical and Empirical Inquiry (Part 1). *Journal of Conflict Resolution.* 45 (3), 259-282.

Sambanis, Nicholas and Annalisa Zinn. 2002. The Escalation of Self-Determination Movements: From Protest to Violence. Prepared for Presentation at the Annual Meeting of the American Political Science Association, Boston, MA, August 29 - September 1, 2002

Sambanis, Nicholas. 1999. United Nations Peacekeeping in Theory and in Cyprus. Ph.D. Dissertation. Princeton University.

Sanchez, Fabio, Andres Solimano, and Michel Formisano. 2002. "Conflict, Violent Crime and Criminal Activity in Colombia." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Sarkees, Meredith Reid and J. David Singer. 2001. "The Correlates of War Datasets: The Totality of War," Paper prepared for the 42nd Annual Convention of the International Studies Association, Chicago, IL (20–24 February).

Shapiro, Ian. 2001. "The State of Democratic Theory." Unpublished paper, Yale University.

Silber, Laura and Allan Little. 1995. *Yugoslavia, Death of a Nation*. New York: Penguin.

Singer, David J. and Melvin Small. 1994. *Correlates of War Project: International and Civil War Data, 1816-1992.* Inter-University Consortium for Political and Social Research, Ann Arbor, Michigan.

Sisk, Timothy Power Sharing and International Mediation in Ethnic Conflict WDC: USIP, 1996

Skaperdas, Stergios. 2001. "An Economic Approach to Analyzing Civil Wars" paper presented at the World Bank Conference on "Civil Wars and Post-War Transitions," UC Irvine, May 18-20, 2001.

Small, Melvin, and J. David Singer. 1982. *Resort to Arms: International and Civil War, 1816-1980.* Beverly Hills: Sage.

Smith, M.L.R. 1999 "The intellectual internment of a conflict: The forgotten war in Northern Ireland. *International Affairs* 75 (1): 77-98

Smith, Anthony D. 1991. *National Identity*. Reno: University of Nevada Press.

Smith, Anthony D. 2001. *Nationalism.* Cambdridge: Polity Press.

Stewart, Frances. 1998. "The Root Causes of Conflict: Some Conclusions," Queen Elizabeth House Working Paper Number 16 (June).

Tiebout, Charles M. 1956. "A Pure Theory of Local Expenditures." *Journal of Political Economy* 64: 416-24.

Toft, Monica. 2001. "A Theory of Territory, Indivisibility, and Ethnic War." Unpublished manuscript. Harvard University.

Treisman, Daniel. 2000. "Decentralization and the Quality of Government." Manuscript UCLA.

Tse-Tung, Mao. 1954. *The Chinese revolution and the Chinese Communist Party.* Peking: Foreign Languages Press.

Varshney, Ashutosh. 2002. *Ethnic Conflict and Civic Life : Hindus and Muslims in India* New Haven, CT: Yale University Press.

Walter, Barbara F. 2002. *Committing to Peace*. Princeton: Princeton University Press.

Walter, Barbara F. 1997. "The Critical Barrier to Civil War Settlement," *International Organization* (Summer), 51:3, 335-365.

Wantchekon, Leonard and Zviika Neeman. 2000. "A Theory of Post-Civil War Democratization." Mimeo. July 28.

Weber, Max. 1949. "Objective Possibility and Adequate Causation in Historical Explanation." In Max Weber, *The Methodology of the Social Sciences.* New York: Free Press.

Weingast, Barry R. 1995. "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development." *Journal of Law, Economics, and Organization* 11: 1-31.

Weinstein, Jeremy M. and Laudemiro Francisco. 2002. "External Actors as a Source of War and Peace in Mozambique." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

White, Robert W. 1989. "From Peaceful Protest to Guerilla War: Micromobilization of the Provisional Irish Republican Army." *American Journal of Sociology* 94 (6): 1277-1302.

Wilkinson, Steven I. 2001 . *The Electoral Incentives for Ethnic Violence: Hindu-Muslim Riots in India*. Forthcoming from Cambridge University Press, (manuscript)

Woodward, Susan. 1995. *Balkan Tragedy: Chaos and Dissolution After the Cold War*. Washington, DC: The Brookings Institution

Woodwell, Douglas. 2002. The "Troubles" of Northern Ireland—Civil Conflict Within an Economically Well-developed State." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Woodwell, Douglas R. 2001. "Unwelcome neighbors: shared ethnicity and international conflict during the Cold War." Unpublished Paper.

Zinn, Annalisa. 2003. "Theory versus Reality: Civil War Onset and Avoidance in Nigeria, 1960-1999." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Zürcher, Christoph, Jan Koehler, and Pavel Baev. 2002. Civil Wars in the Caucasus." Paper prepared for the Yale University-World Bank Case Study Project on the Political Economy of Civil Wars.

Appendix 1 – Does the CH Model Explain Each Case?[106]

Algeria[107]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Algeria 1992-2002*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Oil revenue varies from 25-38% of GDP and from 53-60% of government revenue. • Note the % given in CH dataset (.218).	Consistent	• Oil rich authoritarian regime resistant to reform. • When revenue drops and undiversified economy suffers, resistance to regime rises. • PCE here did not serve as a source of revenue for rebels, but did function as a goal – gain control of the state and they gain control of the revenue. • Implicit agreement between rebels and government that oil infrastructure was not a legitimate target.
GDP per capita	Negative	Mid-level GDP p/c (2,479 in 1990) falls to low GDP p/c (1,410 in 1995) compared to civil war countries (1,645) & non-civil countries (4,219). • Note GDP p/c in CH data is 2,573 in 1990-95.	Consistent	
Diaspora	Positive	Low – Most external support has been on the side of the government, not the rebels.	Inconsistent	

[106] Consistency with the CH theory or a version of it as adapted to each case is noted in the Table. If the variable is non-significant in the CH model, consistency refers usually to the hypothesized relationship and, in some cases (as noted) to the non-significance of the variable in the case study. If the variable is non-significant in CH and it is not discussed in the case study, then I just not that it is a non-significant variable.

[107] The values for different variables are taken from the CH dataset and from Lowi 2002.

GDP growth	Negative	Negative GDP growth 1985-90 (-1.2) shifting to positive for 1990-95 (.7) • Note GDP growth is –1.562 in CH data.	Consistent	Significant because negative growth coincided with disproportionately young population – many youth entering work force just as economy was stagnating.
Mountainous terrain	Positive	Total mountainous terrain (15.7) is near average for no civil war group (15.17). Mountains divide the populous, fertile north from deserted, oil-rich south.	Inconsistent	Significant in this case in spite of the low total because so much of the state is uninhabitable desert and most violence has occurred in an area that is surrounded by forested mountain ranges.
Geographic dispersion	Positive	Population is highly concentrated in north	Inconsistent	Significant in this case that state is divided into two regions. Most violence and prime guerilla terrain is in the northern area with most fertile land.
Social fractionalization	Negative	Low	Consistent	
Population size	Positive	Higher than the mean (17.15 compared to 15.35 for 1990-95 in natural logs)	Consistent	
Ethnic fractionalization	Negative, but non-significant	Moderate degree of ethnic fractionalization (44) relative to civil (52.6) and non-civil war countries (38.6).	Inconsistent (Not significant in CH)	
Religious fractionalization	Non-significant	Low degree of religious fractionalization (2) relative to civil (37.7) and non-civil war countries (36).	Consistent (Not significant in CH)	
Ethnic dominance	Positive	Yes – Arabs make up 75-80% of the population.	Consistent	Not important in this case
Income inequality	Non-significant	High income inequality after oil market collapsed. Those connected to bureaucracy and underground economy had $.	Inconsistent	See below – underground economy was significant.
Democracy	Non-significant	Invalidation of the 1991 election was the proximate cause of the rebellion.	Consistent (Not significant in CH)	

Peace duration	Negative	Only previous war was war of independence. Peace duration (324) high.	Inconsistent	Social meaning of war of independence remained significant at the time of the civil war – veterans of the war, and their children, enjoyed special status and privileges in society. Resistance was glorified.

Non-CH Variables of possible interest for Civil War Onset

- *Invalidated election* (source of grievance). Principal initial aim of insurgents was to reinstate invalidated 1991 election results.
- *Large youth population* (source of rebel labor). Since 1980, more than 70% of population under age 30.
- *Limited outlet for opposition* (source of grievance). The mosque was the only acceptable forum to express any opposition to the regime. Islamic groups became the source of opposition.
- *Social status of resisters* (source of rebel labor). Veterans of Algerian war of liberation get preferential treatment. Unemployed youth hoped to get the same status by fighting in Afghanistan. In general, resistance is glorified, adding incentive to joining the rebellion.

Variables of possible interest for Civil War Duration

- *Underground economy* developed as oil revenues decreased, drawing in the disenchanted. The bulk of the profits from this economy initially went to a small group of well-connected individuals. Eventually, insurgent groups became involved in illicit trade. Likewise, the militia armed by the government to counter the rebels may be attracted by the spoils of war. Author asserts that rebels and government militia have a stake in keeping the conflict going in order to keep control of revenues from this illicit trade.
- *International community* has bought into the government description of the conflict as one against Islamic extremists. In addition, the oilfields in the south are now zones of exclusion and appear to be safe for international investment. Thus the international community continues to fund the government for both business and political reasons. Continued IMF and EU loans and international business investment give the regime incentive to continue the status quo.
- *Division in rebel movement* asserted (with little empirical support) by the author as a reason that negotiated resolution is more difficult.
- *Division in government* asserted by author as a barrier to negotiated settlement. Some preferred to negotiate while others preferred to fight.

Azerbaijan[108]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Azerbaijan 1992-1994*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	NK – Low Azerbaijan – High (23% of GDP in 1999 and 91% of exports in 2001).	Inconsistent	Conflict occurred in NK, a region with no resources.
GDP per capita	Negative	Not noted	n/a	
Diaspora	Positive	High – significant support for NK militias from Armenia and from Diaspora in Middle East and Western Europe.	Consistent	Diaspora support reached significance only after the conflict had escalated and the USSR collapsed.
GDP growth	Negative	Estimated –20% from 1985-90.	Consistent	Shadow economy under perestroika had a negative impact on measured performance of state economy, but simultaneously provided for relatively high standards of living. Ethnic nature of unregulated competition contributed to conflict.
Mountainous terrain	Positive	High (50% mountainous)	Consistent	Terrain played a role later in the war.
Geographic dispersion	Positive	Dispersed population	Consistent	Dispersion at the country-level, but most regions settled by a single ethnic group.
Social fractionalization	Negative	Low	Consistent	Legacy of USSR is that social fractionalization was insignificant.
Population size	Positive	Azerbaijan – 15.76 Armenia – 15.01 NK – 5.25 (compared to mean of 15.35)	Inconsistent	

[108] The values for different variables are taken from the CH dataset and from Zurcher, Koehler and Baev 2002. Note: In some cases, different values are identified for different participants in the conflict (Armenia, Azerbaijan, and Nagorno-Karabakh).

Ethnic fractionalization	Negative, but non-significant	1989 figures: NK – 46 Azerbaijan – 35 Armenia – 13 Fractionalization decreased as conflict progressed due to ethnic cleansing.	Consistent (Not significant in CH)	Also worth noting that NK Armenians used ethnicity more effectively as a mobilizing tool than Azeris, which in part led to superior NK performance in conflict.
Religious fractionalization	Non-significant	Not significant	Consistent (Not significant in CH)	Legacy of USSR is that religious fractionalization was insignificant.
Ethnic dominance	Positive	Yes – Azerbaijan: 72% Azeri, 6% Armenian Armenia: 93% Armenian, 3% Azeri NK: 77% Armenian, 22% Azeri	Consistent	
Income inequality	Non-significant	Not noted	Consistent (Not significant in CH)	No mention of inequality
Democracy	Non-significant	Democratization an important factor.	Inconsistent (Not significant in CH)	Because Armenians were a majority in NK, when they used state institutions but were still unsuccessful in pressing for territorial transfer to Armenia, their perception of grievance was multiplied.
Peace duration	Negative	Peace duration extremely high – no civil wars inside USSR since 1922 in the CH dataset	Inconsistent	Memory of genocide of Armenians during World War I was a significant mobilizing factor.

Non-CH Variables of possible interest for Civil War Onset

- *Soviet state collapse* – As USSR collapsed, Armenians of NK saw possibility of being a minority in Azerbaijan with no central guarantee of minority rights. The Soviets could not prevent private violence and ethnic cleansing as their influence waned and arbitrary and inconsistent shows of force de-legitimized the state further. Once the conflict began, the Azeri state had no more resources for raising the costs of rebellion than did the rebels for paying those costs.
- *Ethno-federal Soviet system* – Ethnic homelands provide minority groups with institutions that can reduce the cost of secession with Soviet state collapse.
- *Shadow economy* - Presence of "shadow economy" partially offsets negative official growth after collapse of USSR. Estimates from 1989-90 are that 30-65% of economy was illicit. NK militias financed their operations in part by taxing this shadow economy. In addition, because access to shadow economy was controlled by the older generation, nationalist movements provided a shortcut for youth to access revenue.

Variables of possible interest for Civil War Duration

- *Military victory* – Military victory of the NK rebels ended the war.
- *History of military participation* – Azeris participated less in the military under Soviet rule; military organizing was therefore more difficult than it was for Armenians in Armenia or NK. Armenians were highly motivated and better organized.
- *Neighborhood* – The conflict in Georgia lengthened the conflict in NK by delaying the Armenian victory there. This is because ethnic Azeris inhabit the border between Georgia and Armenia, and under the unstable Georgian situation warlords in that area were able to prevent supplies from being delivered to Armenia.

Burundi[109]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Burundi 1993-to date*[110]	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Low (0.064) compared to war (0.149) & no-war (0.169) countries. Coffee accounts for 80% of export earnings.	Inconsistent	Other sources of rebel finance: foreign aid.
GDP per capita	Negative	Low (550) compared to war (1645) & no-war (4219) countries. Burundi among world's poorest	Consistent	
Diaspora	Positive	High number of refugees in neighboring countries.	Consistent	
GDP growth	Negative	High growth (3.5) compared to war (-0.23) & no-war (1.74) countries.	Inconsistent	
Mountainous terrain	Positive	Very mountainous (74.5%) compared to war (24.9%) & no-war (15.2%) countries.	Consistent	Positive effect magnified when combined with high population density in mountainous areas.
Geographic dispersion	Positive	Lower (0.456) than both war (0.603) & no-war countries (0.569).	Inconsistent	
Social fractionalization	Negative	Data not available, but likely to be low given low ethnic fractionalization & no religious fractionalization.	Consistent	
Population size	Positive	Higher than mean (15.57 versus 15.35 in natural logs). Second highest population density in Africa.	Consistent	Population density may aid rebellion by making it easier for rebels to hide.

[109] The values for different variables are taken from the CH dataset and Ngaruko and Nkurunziza 2002.

[110] While the patterns of Burundi's conflicts are discussed in the case study, the emphasis is on the war that started in 1993. It seems that the previous civil wars had many of the same determinants, but that external intervention was much more significant in the most recent conflict in terms of affecting its duration (which is not relevant for the purposes of this table. Values from CH are for 1990-94 period. While this was the period of war outbreak, there was a war outbreak in the previous period.

Ethnic fractionalization	Negative, but non-significant	Very low fractionalization (4) relative to war (52.6) & no-war (38.6) countries. Adjusted index (26), which corrects for shared language among Hutu, Tutsi & Twa, is still low. But Burundi's degree of political instrumentation of ethnicity is one of the world's highest.	Consistent (Not significant in CH)	ELF index ignores differences among groups that speak same language. Also, CH measure of ethnic of polarization should be revised to reflect degree of political instrumentation of ethnicity, which is the means by which ethnicity affects civil war onset.
Religious fractionalization	Non-significant	No religious fractionalization.	Consistent (Not significant in CH)	
Ethnic dominance	Positive	Given shared language among groups, no ethnic dominance appears in CH. Hutus are the numerical majority, but the three military presidents that have ruled Burundi for 90% of the period since 1966 are Tutsi from Bururi, one of the 15 provinces.	Inconsistent with CH Consistent with case study version.	Measure of ethnic dominance should include regional ethnic groups that are politically-dominant. Political & economic systems inclusive of all ethnicities should decrease conflict risk, e.g. root cause of Burundian wars was lack of such inclusiveness.
Income inequality	Non-significant	No data available in CH. Low Gini coefficient (between 0.15 & 0.30) for land distribution between Hutu & Tutsi	Consistent (Not significant in CH)	Income poverty affects Tutsi & Hutu alike. Evidence of regional inequality (Bururi is richest province)
Democracy	Non-significant	Anocratic regime year prior to war (polity score = -3); a departure from –7 score of previous decades. Change reflects election of civilian government led by Hutus, but with Tutsi prime minister & 32% of cabinet seats). War begins with killing Hutu elites.	Consistent (Not significant in CH)	Regime change during which traditionally-dominant group is dismissed may increase risk of war by stimulating the new political minority to fight to regain its dominance. Change was imposed by international community as a condition for the resumption of aid; implies that "imposed democracy" may heighten risk for civil war.
Peace duration	Negative	There were 4 prior civil wars: 1965, 1972, 1988, and 1991.	Consistent	1965 war not in CH dataset

Non-CH Variables of possible interest for Civil War Onset

- *Ethnic bias in colonial administration.* Prior to colonial rule, being Tutsi or Hutu was just one of many salient identities. But Belgium's "divide-and-rule" policy favoring the Tutsi created the conception that Tutsi were born to rule while the Hutu were an inferior race at the service of Tutsi lords. This conception was later instrumented by a regional group of Burundian leaders to capture and monopolize power.
- *Neighborhood effects.* Rwanda's "social revolution" in 1959 was critical, as it marked a bloody transfer of power from the Tutsi monarch to the Hutu ethnic majority. Following this event, many among Hutu elite felt that their group's ethnic majority should guarantee also to them *de facto* control of state institutions, while a group of Tutsi became determined to prevent, by all necessary means, a similar "revolution" from happening in Burundi.
- *Independence of the judiciary.* The paralysis of the Burundi judiciary and its total submission to the executive has been responsible for the failure of the system to break the cycle of violence. Not only have the root causes not been addressed, but the different governments have never bothered to make any credible inquires to inform the public about the large-scale killings. As a result, Tutsi criminals have realized the increasing economic returns to violence with little chance of being sanctioned and Hutus have come to realize that violence is the only way to "avenge" past and present injustices.
- *Exclusive political and economic systems.* When rents from controlling the state are high, incentives to gain and keep control are very high. Evidence of the high economic gains of controlling the state: Bururi province—the place of origin of most Tutsi elites— (1) was the lowest province in terms of food production, but had the 2nd highest per capita income; and (2) paid the lowest in taxes, but received the most public investments.

Chechnya[111]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Chechnya 1994-1996, 1999*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	High; some of the oil profits were accessible to local elites as part of Russian Federation.	Consistent	Though oil was important to the economy in Chechnya, there is no indication it was a cause of the wars. Oil dependence caused the war to last longer; lack of consolidated state institutions linked to oil dependence and competition among gangs for oil profit increased incentives to keep war going. This was true for small individual producers and later for individual Russian commanders.
GDP per capita	Negative	No estimate given, but one of the lowest in the USSR. Unemployment as high as 30%.	Consistent	
Diaspora	Positive	High	Consistent	Funding from Diaspora contributed to the length, but not the outbreak of the war. Definition of Diaspora should include non-Chechen Islamic groups. Also Chechens in Russia.
GDP growth	Negative	Soviet economy, esp. heavy industry, experienced declining growth in 1980s. Oil profits partly offset decline but profits diverted to Moscow	Consistent	Presence of a "shadow economy" after the fall of the USSR partially offsets negative official growth.
Mountainous terrain	Positive	Approximately 30% mountainous terrain.	Consistent	
Geographic dispersion	Positive	Not noted	N/A	
Social fractionalization	Negative	Low	Consistent	Legacy of USSR is that social fractionalization was insignificant.

[111] The values for different variables are taken from the CH dataset and from Zurcher, Koehler, and Baev 2002.

Population size	Positive	Lower than the mean (13.64 compared to 15.35 for 1989 in natural logs)	Inconsistent	
Ethnic fractionalization	Negative, but non-significant	Low	Consistent (But not significant in CH)	
Religious fractionalization	Non-significant	Not significant	Consistent (Not significant in CH)	Legacy of USSR is that religious fractionalization was insignificant. However, non-Chechen Muslim countries are sources of funding.
Ethnic dominance	Positive	Yes – Chechens make up 73% of the population, ethnic Russians 26%.	Consistent	Conflict lines are not between Chechens and Russians in Chechnya, but between Russian state and secessionist Chechen state.
Income inequality	Non-significant	Not noted.	Consistent (Not significant in CH)	
Democracy	Non-significant	Democratization and collapse of Soviet system (USSR collapse more important)	Not significant in CH	No functioning state institutions in Chechnya
Peace duration	Negative	Peace duration before first war extremely high – no civil wars inside USSR since 1922. Duration before second war very short.	Inconsistent for first war. Consistent for second war.	History of violent colonization by Russia and Stalin's deportation of Chechens was an asset for mobilizing once Russians invaded in 1994.

Non-CH Variables of possible interest for Civil War Onset

- Note author asserts that CH variables explain the duration of the conflict better than the onset of the Chechen revolution in 1991 or either Russian invasion. The first invasion was brought on more for political reasons after Chechen criminals engaged in bus hijackings in the North Caucasus.
- *State collapse* – Between the Chechen declaration of independence in 1991 and Russian invasion in 1994, Chechnya was *de facto* independent and structures of Soviet state were completely dismantled. Not an evolution from old to new leadership, but a rapid turnover. New leadership was torn by factions, reliant on criminal elements for enforcement and could not consolidate institutions. State failure occurred – shutdown of routine government services, anarchy in large parts of the country, failure of security forces to carry out directives. A similar issue arose between the two wars when, despite elections, individual field commanders were reluctant to give up authority to the state and instead sought their own funding from oil profits and the Diaspora.
- *Ethno-federal Soviet system* – Ethnic homelands provide minority groups with institutions that can reduce the cost of secession with Soviet state collapse.
- *Neighborhood* – Several conflicts in the Caucasus meant that arms were widely available.

Variables of possible interest for Civil War Duration

- *Internal fragmentation of rebels* – Russia has no single negotiation partner.
- *Markets of violence* – Multiple parties with a stake in continuation of the conflict to ensure access to economic benefits. This was true both of the multiple Chechen factions and some individual Russian military commanders.

Colombia[112]

CH variable	*Association with war onset in CH model*	*Values for Variable*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Drug trafficking is a major source of income for all rebel groups	Consistent	FARC, ELN, and AUC are all financed heavily by drug income. All engage in kidnapping and extortion. Kidnapping major source of financing.
GDP per capita	Negative	Not noted	N/A	No discussion of poverty. Authors discuss "lack of state presence." In the 1940s, this was significant in inciting violence over land issues. Guerilla groups grew in areas where the agrarian movements were strongest.
Diaspora	Positive	Not noted	N/A	
GDP growth	Negative	Not noted	N/A	
Mountainous terrain	Positive	Not noted	N/A	
Geographic dispersion	Positive	Not noted	N/A	
Social fractionalization	Negative	Not noted	N/A	
Population size	Positive	Not noted	N/A	
Ethnic fractionalization	Negative, but non-significant	Not noted	N/A	
Religious fractionalization	Non-significant	Not noted	N/A	
Ethnic dominance	Positive	Not noted	N/A	
Income inequality	Non-significant	Not noted	N/A	
Democracy	Non-significant	Not noted	N/A	
Peace duration	Negative	Long history of violence	Consistent	La Violencia created predecessors of current groups. Strong memories of repression helped mobilize support.

[112] The values for different variables are taken from the CH dataset and from Sanchez, Solimano and Formisano 2002. Note: This case study focuses on both crime and, to a lesser degree, civil war in Colombia.

Non-CH Variables of possible interest for Crime Incidence/Increase

- *Summary* – The authors use guerilla attack rates for each region and its neighbors, drug-trafficking income, justice inefficiency, poverty, inequality in property distribution, and education as explanatory variables. Homicide, kidnapping, and property crimes are the primary dependent variables.
- *Contagion* – The focus is on two types of contagion of violence and criminal activity within Colombia: relocation and diffusion. Relocation is when violence moves from one area to another in response to an increased law enforcement presence or an exhaustion of the profits from a region. Diffusion describes the process through which violence moves from a given area to neighboring units while crime/violence remains high in the central area. Temporal and spatial contagion found to be significant.
- *Armed conflict* – A significant relationship is found between conflict and homicidal violence (though the distinction between conflict violence and homicidal violence is unclear). The diffusion effect of conflict on homicidal violence is significant only in the case of FARC. Similar findings obtain in the study of kidnapping.
- *Judicial efficiency* – Measure of number of homicides solved divided by total number of homicides has negative relationship to homicide rate.
- *Poverty* – Regional poverty has a negative relationship to violent crime, while poverty in neighboring regions has a positive and significant relationship to violent crime. Thus if a neighboring region is poor, the probability of violent crime in a local region is higher.

Côte d'Ivoire [113]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Period 1: 1960-1993*[114] *Period 2: 1994-1999*[115]	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	P1: Average primary commodity exports/GDP (0.296, S.D. = 0.023) for 1960-94 higher than non-war (0.169) & war countries (0.149) and close to the highest risk ratio (0.32). P2: Primary commodity exports/GDP (0.298) for 1995-99 higher than non-war (0.169) & war countries (0.149) and close to the highest risk ratio (0.32).	P1 & P2: Inconsistent	P1: Côte d'Ivoire turned its dependence on primary commodity exports (cocoa, coffee & timber, all of which are located in the south) into an asset by using the export sector to fund its redistribution strategy. This shows how credible redistribution can be used to mitigate conflict risk.
GDP per capita	Negative	P1: Consistently lower than non-war (4219) countries & close to war countries (1645)with average of 1500. P2: Low (1213) compared to war (1645) & non-war (4219). P1 & P2: GDP/capita in the south higher than average, but lower in the north.	P 1 & P2: Inconsistent	P1: Credible redistribution increases opportunity cost of rebel labor, hence decreases conflict risk of low GDP/capita. P2: Cuts in public sector wages & civil service downsizing (forms of private redistribution) deepened poverty & violence did break out in 2000, suggesting that cuts in redistribution exacerbate the problem.
Diaspora	Positive	No mention of a diaspora.	n/a	

[113] The values for different variables are taken from the CH dataset and Azam and Koidou 2003.
[114] Period 1 (1960-1993) corresponds to the period from independence to the death of President Houphouët-Boigny.
[115] Period 2 (1994-1999) corresponds to the path that led to coup d'état in 1999 and violent return to civilian rule in 2000. It is important to note that this period is still a case of war avoidance, although it did set the stage for future violence.

GDP growth	Negative	P1: Negative growth in some years, (-3.11 in 1965-70, -10.96 in 1980-85, -1.10 in 1990-95); mostly lower than the war country average (-0.23). High growth in other years (9.93 in 1960-65, 10.38 in 1970-75, 8.25 in 1975-80); much higher than the non-war country average (1.74). P2: High growth (8.01).	P1: Mixed (consistent for some years but inconsistent for others). P2: Consistent	Despite the resumption of high growth in 1994 after devaluation of CFA franc, poverty deepened among all ethnic groups due to massive fall in public sector wages & downsizing of civil service. Hence a better measure of economic conditions may be data from household surveys.
Mountainous terrain	Positive	Very few mountains (0.4% of area). No mention of terrain in case study.	P1 & P2: Consistent	
Geographic dispersion	Positive	Lower (0.568) than in both war (0.603) & non-war countries (0.569).	P1 & P2: Consistent	
Social fractionalization	Negative	CH data not available; likely to be moderate given high ethnic fractionalization & low religious fractionalization.	P1 & P2: Unclear	Social polarization may be more significant. (See new variables section for more.)
Population size	Positive	P1: Average (15.72) higher than mean (15.35). P2: Higher than the mean at 16.42. (All in natural logs.)	P1 & P2: Inconsistent	
Ethnic fractionalization	Negative, but non-significant	P1 & P2: High ethnic fractionalization (86) relative to war (52.6) & non-war countries (38.6). Albeit there are more than 70 ethnic groups, natural groupings divide the population into 3-4 ethnic groups at most.	P1 & P2: Consistent by the CH measure, inconsistent by case study's measure. (Not significant in CH)	Measure of ethnic fractionalization should account for natural groupings of ethnic groups.

Religious fractionalization	Non-significant	P1 & P2: Low religious fractionalization (22) relative to war (37.7) & non-war countries (36). But there is a strong religious cleavage between the Muslim north & Christian & animist south.	P1 & P2: Consistent (Not significant in CH)	Religious polarization may be more significant; especially if ranked with ethnic, regional & economic cleavages; argued to be the most divisive of these cleavages in Côte d'Ivoire.
Ethnic dominance	Positive	P1 & P2: No ethnic dominance according to CH; largest ethnic group is 23% of the population. But the Akan regional group (41.4% of population) dominated political center from independence, though dominance was challenged by emergence of ethno-regional parties beginning in 1990.	P1 & P2: Consistent by CH measure, but inconsistent by case study's measure.	A more accurate measure would reflect political dominance, possibly held by an ethno-regional group less than 45% of the population Such dominance can be mitigated by a credible (i.e. with assurances that it will continue in the future) redistribution strategy that assigns some powerful positions to members of other groups.
Income inequality	Non-significant	P1 & P2: Same level of income inequality as war & non-war countries (0.41). But southerners are richer than northerners.	P1 & P2: Consistent	
Democracy	Non-significant	P1 & P2: Non-democratic regime (polity score = -9 for 1960-89, -7 for 1990-94, -6 19995-98, -1 1999). Regime liberalized to include multiple parties in 1990. 1994 law required voters & candidates & their parents to have been born in Côte d'Ivoire.	P1 & P2: Consistent (Not significant in CH)	
Peace duration	Negative	P1 & P2: There were no civil wars in Côte d'Ivoire through 1999.	P1 & P2: Consistent	

Non-CH Variables of possible interest for Civil War Onset/Avoidance

- *Credible redistribution.* Through redistribution, the richer southerners were able to avoid political violence and rebellion from the poorer northerners most of the time, or kept any violence within acceptable bounds if violence occurred. In this way, Côte d'Ivoire was able to avoid civil war, despite possessing several high risk factors. Key aspects of this strategy during period 1 included: large-scale public investment in the poorer region, raising representatives from different ethnic groups to powerful political positions, establishing education as the key to getting lucrative positions, and high wages to public sector employees. In order to be conflict-preventing, redistribution must be credible, i.e. it must give believable assurances that it will continue in the future.
- *Colonial policy.* A main reason why the Akan have been politically-dominant is that the French entered Côte d'Ivoire from the southeast, which is a region where the Akan live and so they were the first to benefit from formal schooling. Also, the capital city of Côte d'Ivoire under French rule was in the southeast. This suggests that a mechanism by which ethno-political dominance can emerge is favoritism, either deliberate or by chance, in colonial policy.
- *Social polarization (ranked ethnic, regional, religious and economic polarization).* The north-south divide, augmented by ranked economic and religious cleavages, is argued to have dominated the political landscape in Côte d'Ivoire and to have been the key source of potential conflict, i.e. a rebellion of the poorer northerners against the richer and politically-dominant southerners.

Democratic Republic of the Congo[116]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Period 1: 1960-1967*[117] *Period 2: 1977-1978*[118] *Period 3: 1996-1997*[119] *Period 4: 1998-ongoing*[120]	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Immense endowment of natural resources, e.g. cobalt, diamond, copper & timber. P1: Lower (0.076) than war (0.149) & no-war (0.169) countries. War erupted in the most mineral-rich areas: East, Katanga & Kasai. P2: Low (0.078). Rebel group (FNLC) sought control of mineral-rich Katanga. P3&4: At 0.131 close to war countries. Up to late 1980s largest producer of cobalt, 3rd in diamonds & 5th in copper; mineral industry was 24% of GDP. But by 1999 50-70% of diamond trade was outside official trading system.	P1: Inconsistent with CH; Consistent with case study P2: Inconsistent with CH P3: Consistent P4: Consistent	P1&2: Geographical concentration of resources combined with unequal distribution of wealth across regions may be key drive for secessionist rebellion. P3&4: Primary commodity exports/GDP may not capture the full extent of the mineral industry when there is illicit trade going on, perhaps in preparation for war or during war.

[116] The values for different variables are taken from the CH dataset and from Ndikumana and Emizet 2002.
[117] This refers to the Katanga secession (1960-63), the Kasai secession (1960-62), the Kwilu rebellion (1964-65) and the Eastern rebellion (1964-66).
[118] This refers to the two Shaba wars (1977 and 1978).
[119] This refers to the Anti-Mobutu rebellion.
[120] This refers to the Anti-Kabila rebellion.

GDP per capita	Negative	P1: Very low (489) compared to war (1645) & no-war (4219) countries. P2: Very low (637). Situation worsened by Zairianization 1973-74 which increased government debt & mineral dependence & disrupted infrastructure. P3&4: Not available in CH.	P1: Consistent. P2: Consistent P3&4: Unknown	P3: Poor economic conditions may weaken government ability to counteract rebellion.
Diaspora	Positive	P1: No mention of a diaspora. P2: Many Shaba rebels were Katangan gendarmes who had fled to Angola in mid-1960s. P3: Arrival of Rwandan Hutu refugees was event triggering the path to war. Rebels were Congolese of Rwandan, particularly Tutsi, origin. P4: Rebellion started by Tutsis who left the DRC.	P1: Inconsistent P2: Consistent P3: Consistent P4: Consistent	P2&4: Diaspora can be source of rebellion, i.e. the ones who fight. P3: Diaspora from another state, when met with discrimination laws also targeting descendents of past diasporas, may increase risk of civil war.
GDP growth	Negative	P1: Very low (-10.85) compared to war (-0.23) & no war (1.74). countries. P2: Very low (-4.98). P3&4: At 0.70 between war & no war countries in CH. Growth per year in case study –7.8 for 1988-98.	P1: Consistent P2: Consistent P3&4: Unclear w.r.t. CH; Consistent with case study version.	
Mountainous terrain	Positive	P1-4: Few mountains (4.2%). No mention of other terrain.	P1-4: Inconsistent	

Geographic dispersion	Positive	P1-4: At (0.601) close to war countries (0.603).	P1-4: Consistent	
Social fractionalization	Negative	P1-4: No data available, but likely to be moderately high given very high ethnic fractionalization, though low religious fractionalization.	P1-4: Inconsistent	
Population size	Positive	P1-4: Higher than the mean (17.05 compared to 15.35 for in natural logs).	P1-4: Consistent	
Ethnic fractionalization	Negative, but non-significant	P1-4: Very high (90) relative to war (52.6) & no-war (38.6) countries. Fractionalization contained the geographic spread of rebellion.	P1-4: Inconsistent	
Religious fractionalization	Non-significant	P1-4: Low (10) relative to war (37.7) & no-war (36) countries.	P1-4: Consistent (i.e. not significant)	
Ethnic dominance	Positive	P1-3: No dominance marked in CH, although largest ethnic group said to be 45% of the population. Secessionist regions had dominant ethnic groups. Mobutu government dominated by his co-ethnics. P4: Kabila initially favored Katangans & Banyamulenge; rebellion started by Tutsi who felt threatened after Kabila broke its ties with Rwanda.	P1-4: Inconsistent with CH; Consistent with case study version.	P1&2: Ethnic dominance on regional level may increase risk of secessionist war. P1-4: What matters is ethno-political dominance.

Income inequality	Non-significant	P1-4: No data available in CH. Inequality among regions seems to have been present.	P1-4: Unknown	
Democracy	Non-significant	P1& 2: Non-democratic regime (polity score = -9). P3&4: Non-democratic regime (polity score = -7).	P1-4: Inconsistent[121] (Not significant in CH)	
Peace duration	Negative	P1: No prior war P2: Shaba wars were a direct outgrowth of Katangan war. P3: Prior civil wars. P4: War direct response to outcome of previous war.	P1: Inconsistent P2: Consistent P3: Consistent P4: Consistent	

Non-CH Variables of possible interest for Civil War Onset

- *Colonial economic policy*. The Eastern provinces were endowed with vast natural resources and received bulk of investment in infrastructure. This caused uneven economic development across regions, especially since the entire colonial economy was based on natural resource extraction. This in turn was at the root of post-independence conflicts because it encouraged the resource-rich regions to secede and resource-poor regions to demand greater share of national wealth.
- *Urbanization, another colonial legacy*. As migrants confronted an impersonal urban environment, they formed ethnic associations for mutual support and ethnic solidarity. This was the beginning of the ethnicization of politics, which led to the political exclusion of rival ethnic groups and in so doing transferred regional economic antagonisms into the political realm. Unsurprisingly each of the eight ensuing rebellions was organized along ethnic lines.
- *External actors.* Katangan rebels received support from Belgian government, mining giant and other corporate groups. The rebel group in the Eastern rebellion (1964-66) received help from the Burundi government. The anti-Mobutu rebellion received support from Rwanda, Uganda and Angola. The anti-Kabila rebellion received support from Rwanda and Uganda.
- *Political instability*, e.g. antagonisms within political elite, is argued to have played an important role in setting the stage for the outbreak of the rebellions, but it is not clear how or why political instability led to civil war.
- *Weak military*. In an attempt to reduce threats from the army, Mobutu did not invest heavily in national defense. As a result, the army was disorganized, under-equipped and demoralized, which is argued to have aided the outbreak of rebellion.

[121] In determining whether the outcomes are consistent or not, I am considering the implications of Hegre et al. (2001) on the escalated risk of civil war in anocracies (i.e. regimes with polity scores from –5 to 5).

Georgia[122]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Georgia 1989-1993*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Not significant. Produced high value agricultural products when part of USSR, but after independence, this trade decreased significantly.	Inconsistent	Wars started in spite of there being few natural resources, but later the absence of lootable natural resources played a role in limiting duration of war in South Ossetia.
GDP per capita	Negative	Estimate for 1995 of 1100-1300, compared to civil war countries (1645) & non-civil countries (4219).	Consistent	This estimate does not account for value of the "shadow economy." In addition, at time of war break out, Georgia was comparatively wealthy in the USSR, which is the population against which author thinks it should be compared.
Diaspora	Positive	A decisive factor in South Ossetia, key factor in Abkhazia, and significant factor in Georgian power struggle	Consistent	Diaspora is a somewhat misleading term in South Ossetia, as the support for the movement came from a quasi-state entity and that entity's power in Russia.
GDP growth	Negative	Soviet economy, especially heavy industry, experienced declining growth in 1980s, but Georgian economy grew in that time.	Inconsistent	Author suggests conflict causes slow growth, not the other way around. Significant negative GDP growth after fall of USSR (76% from 1989-1994).
Mountainous terrain	Positive	Between 65-85% of conflict regions had mountainous terrain.	Consistent	Consistent, but not significant in this case. Terrain did not matter until late in struggle in Tbilisi; mountains were more of a problem for rebels in South Ossetia; not a factor in Abkhazia.
Geographic dispersion	Positive	Dispersed population – 45% live in rural areas.	Consistent	
Social fractionalization	Negative	Low	Consistent	Legacy of USSR is that social fractionalization was insignificant.
Population size	Positive	Slightly higher than the mean (15.51 compared to 15.35 for 1989 in natural logs)	Consistent	

[122] The values for different variables are taken from the CH dataset and from Zurcher, Koehler, and Baev, 2002.

Ethnic fractionalization	Negative, but non-significant	Relatively high – 11 identified ethnic groups.	Inconsistent (But not significant in CH)	
Religious fractionalization	Non-significant	Not significant	Consistent (Not significant in CH)	Legacy of USSR is that religious fractionalization was insignificant.
Ethnic dominance	Positive	Yes – Georgians make up 70% of the population overall and 45.5% of population in Abkhazia. Georgians make up only 30% of South Ossetian population, where Ossetians account for 66%.	Consistent	Ethnic dominance was important in two of the three conflicts, and worth noting the regional aspect – ethnic Georgians were the dominant group overall but not the dominant group in every sub-region.
Income inequality	Non-significant	Income in South Ossetia 30-40% lower than Georgian average	Not significant in CH	Minimal impact of economic factors in these wars, even though inequality existed in one of three Georgian war cases.
Democracy	Non-significant	Democratization an important factor.	Not significant in CH	Democratization was combined with nationalist discourse. Decisions of recently elected parliaments triggered violent escalations, while curtailing of democratic processes stabilized situation.
Peace duration	Negative	Peace duration extremely high – no civil wars inside USSR since 1922.	Inconsistent	Possible impact of struggle for political control in Georgia and South Ossetian conflict on outbreak of Abkhazian conflict.

Non-CH Variables of possible interest for Civil War Onset

- *Possible revision of dependent variable* – There were three major political conflicts in Georgia (power struggle, South Ossetia, Abkhazia) that should be analyzed as separate civil wars.
- *Soviet state collapse* – One of the, if not the single most important factor in triggering wars. Creation of public political space, empowerment of regional parliaments, and dismantling of Communist Party led to struggle for control of state apparatus. Parties to this struggle exploited fears of secession from new Georgian state. In doing so, provoked problems in South Ossetia and Abkhazia. In addition, state collapse meant that state was trying to establish itself at the same time as rebel movements were doing so. Competition between elite and a legacy of institutionalized corruption among elite networks at the moment of transition led to conflict. Thus the state faced some of the same start-up costs as rebels. When government authorized national guard, it could not provide them with significant resources.
- *Ethno-federal Soviet system* – Ethnic homelands provide minority groups with institutions that can reduce the cost of secession with Soviet state collapse.
- *Support from neighboring co-ethnics* – South Ossetian movement received a big boost from North Ossetian support.
- *Neighborhood* – Several conflicts in the Caucasus meant that arms were widely available.

Variables of possible interest for Civil War Duration

- *Leadership change* – Shevardnadze was able to blame earlier state behavior on previous leader, giving him room to negotiate more quickly an end to hostilities.
- *International community* – Russian involvement varied depending on the venue. They provided peacekeeping troops that contributed to the end of the South Ossetian conflict. In Abkhazia, they officially tried to mediate, but at the same time provided support for the rebels.
- *Lootable resources* – Abkhazian conflict driven in significant part by desire for control of shadow economy. As tourism and transport of agricultural products declined with war, these prizes decreased and economic foundations of war disappeared. Absence of lootable resources in South Ossetia led to relatively quick end of that conflict. A similar dynamic occurred in struggle for control of government, where economic basis of warlords disappeared as shadow economy collapsed. Thus conflict led to slow growth in both shadow and legitimate economy, and since those competing for power were unable to sustain the conflict without resources, the decline in wealth contributed to the shortness of the conflict.

Indonesia[123]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Indonesia 1976, 1989, 1999*[124]	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Ratio falling in Indo – .194 (1976) to .12 (1989) to .082 (1999). Ratio rising to plateau in Aceh: massive natural gas deposits discovered 1971; 69% of economy by 1989-99. Compared to .149 for civil war group and .169 for no civil war group.	Consistent 1976 Inconsistent 1989, 1999	• Oil dependence elicits strong response from government, increasing repression and creating grievances • Also, grievance over distribution of resources – claims that non-Acehnese are stealing resources; • High level of dependence meant that government's promises of greater autonomy were non-credible.
GDP per capita	Negative	Low: Indo $395 (1976), $697 (1989), $1074 (1999). Aceh throughout was on a par with national GDP p/c. Compared to civil war countries (1645) & non-civil countries (4219).	Consistent	
Diaspora	Positive	Significant Acehnese Diaspora (10,000+)	Consistent	
GDP growth	Negative	Indo: +7.8% (1970-79); +4.5% (1976-89); +6.5% (1989-96); -17.8% (1998). Aceh: +5.2% (1971-75); kept pace with Indo as a whole for 1980s; -9.2% (1998). Civil war (-.226) and no civil war groups (1.74).	Consistent	Growth may have increased the likelihood of civil war in Aceh by drawing in migrants in search of income, thus increasing the local population's dissatisfaction. Massive collapse in 1998 led to downfall of government, which in turn had a significant impact on war outcome in 1999.

[123] The values for different variables are taken from the CH dataset and from Ross 2002.
[124] Note the case study focuses on rebellion in Aceh

Mountainous terrain	Positive	Indonesia is a massive archipelago. Aceh is highly mountainous – 78% steep or above.	Consistent	
Geographic dispersion	Positive	Dispersed over many islands	Consistent	
Social fractionalization	Negative		Consistent	
Population size	Positive	Largest Muslim population in the world. Very large.	Consistent	
Ethnic fractionalization	Negative, but non-significant	More than 300 distinct language groups – highly diverse.	Inconsistent (Not significant in CH)	
Religious fractionalization	Non-significant	90% Muslim, which has sometimes provoked fear in non-Muslim areas (Aceh is Muslim).	Not significant in CH	
Ethnic dominance	Positive	Indo – yes (45% Javanese) Aceh – yes (79% Acehnese)	Consistent	Significant because the ethnic group that dominates the region with the war dominates that region, but is not the same as the ethnic group that dominates the nation-state as a whole.
Income inequality	Non-significant	Indo – low (Gini coefficient 34.6-36.5)	Not significant in CH	
Democracy	Non-significant	Authoritarian until 1998. Transition to partial democracy in 1998-99.	Not significant in CH	
Peace duration	Negative	History of violence not usually coded as civil war – between 100,000 and one million killed by military in 1965-66 in an effort to eradicate influence of Communist Party.	Consistent	In Aceh, memories of the 1989 conflict made renewal of conflict in 1999 more likely.

Non-CH Variables of possible interest for Civil War Onset

- *Political Legitimacy* – Indonesian government had little legitimacy in Aceh, both because of a history of Acehnese struggle against colonial rule and because of governmental behavior in Aceh. Government repression in response to rebel movement led to short term collapse of movement but also to long-term antipathy toward government in local population. Thus even when the government pledged aid to the region and acknowledged past errors, including human rights violations, the local population did not believe the promises and apologies.
- *Leadership* – Charismatic entrepreneurial leadership of Hasan di Tiro, founder of Acehnese independence movement, was essential to movement's success.
- *Support from foreign government* – Libyan support before 1989 war made rebel movement viable.
- *Defecting government troops* – Boosted rebel movement.
- *Contagion effect* – Success of independence movement in East Timor led to demands for independence in Aceh.

Variables of possible interest for Civil War Duration

- *Underground economy* – Rebel movement eventually resorted to voluntary donations, taxes, extortion, robbery, and the sale of timber and cannabis for funding.
- *Uncertain control over armed forces* – Both the rebel movement and the government forces have suspect control over their forces. Thus the rebels are unable to implement policies that may be intended to limit violence, while corruption in the military has led to increased profiteering from the war and, some suggest, deliberate undermining of peace efforts by the government.

Jamaica[125]

CH variable	*Association with war onset in CH model*	*Values for Variable*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	No percentages given, but author cites that state revenue is derived largely from bauxite and the drug economy is a major factor in violence	Inconsistent	Drug economy finances Dons of the garrison townships.
GDP per capita	Negative	Mid-level GDP per capita (3500 in 1999), compared to civil war countries (1645) & non-civil countries (4219).	Consistent	
Diaspora	Positive	Not noted.	N/A	
GDP growth	Negative	Highs in 1972 (9.0) and 1989 (5.0), lows in 1975 (-5.0) and 1997 (-2.5).	Varies according to period	As private economic opportunities decline, competition for control of public sector increases, even in this non-civil war.
Mountainous terrain	Positive	Not noted	N/A	
Geographic dispersion	Positive	44% of population lives in the greater Kingston area – case study considers only this part of the country.	Inconsistent	
Social fractionalization	Negative	Low	Inconsistent	Divisions may be along different lines. Here they are along the lines of garrison neighborhoods that are affiliated with political parties. No ethnic or religious element.
Population size	Positive	Lower than the mean (14.79 compared to 15.35 for 1990-95 in natural logs)	Consistent	

[125] The values for different variables are taken from the CH dataset and from Duncan and Woolcock 2002. The case of Jamaica is listed as a "no war" case in the CH dataset. Column 4, therefore, identifies whether the variable is consistent or not with a "no war" outcome. The authors of the case study attempt to make the case that the CH model can, with "close attention to the context-specific form and function of Jamaica's social divisions and weak institutions," effectively explain political violence short of war. In Jamaica, there is extensive localized and politically motivated violence, but no attempt to overthrow the state. The authors never specifically identify Jamaica as a case of civil war, but do attempt to explain the high murder rate and its political origins using some of the CH model.

Ethnic fractionalization	Negative, non-significant	Low – ELF score of 5 is far below both civil and non-civil war countries	Consistent (But not significant in CH)	
Religious fractionalization	Non-significant	Not noted – not significant	Consistent (But not significant in CH)	
Ethnic dominance	Positive	Yes – described as a "mono-ethnic nation."	Inconsistent	
Income inequality	Non-significant	Average (.42) relative to civil (0.41) and non-civil war countries (0.41)	N/A	
Democracy	Non-significant	A consolidated democracy, though with decreasing institutional performance.	Consistent (But not significant in CH)	"Democracy" is an imprecise measure. Here it has a history of relatively free and fair elections, with losing parties without exception handing over power peacefully and a robust civil society. However, "political tribalism" has led to extensive violence in the garrison communities.
Peace duration	Negative	No war	Consistent	

Non-CH Variables of possible interest for Onset of Violence

- *Political Tribalism* – Political parties control territories within the inner-city, and these territories compete violently. The authors make the case that the political leaders of the two parties compete for and/or coerce loyalty of garrison communities and then use those communities to attempt to win control of the government through elections.

Variables of possible interest for Duration of Violence

- *Underground economy* – The drug trade finances the political violence. Some Dons have begun to engage in legitimate business activity in the downtown areas. The location of the garrison communities, and the control their Dons therefore have over access to either downtown (for jobs in the legitimate economy) or the wharf (for access to drugs and guns), facilitated a brief lull in the inter-garrison conflict. Growth in the drug trade has to an extent shifted the control of the violence from the political actors to the Dons.

Kenya[126]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Kenya 1990-1999*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Primary commodity exports/GDP (0.085) lower than both no-war (0.169) & war countries (0.149).	Consistent	Land (e.g. farms) is also a lootable resource, but given long gestation period for agricultural production, it is a useful lootable resource only for sporadic violence aimed at displacement.
GDP per capita	Negative	Low GDP per capita (911 in 1990-99), compared to war countries (1645) & especially to no-war countries (4219). Poverty doubled in the 1990s, with 56% of the population living below the poverty line.	Inconsistent	Also important to consider opportunity cost for rebel labor faced by those most likely to rebel. The Kikuyu, key targets of government violence, held advantages in land ownership & were the ethnic group most involved in the market economy.
Diaspora	Positive	No mention of "international" diaspora.	Consistent	In cases where the "internal" diaspora of an ethnic group is targeted for violence, ethnic kin from the "home base" may encourage retaliation and provide financial support. For example, Kikuyu diasporas in Coastal & Rift Valley provinces were targeted; Kikuyus in the home provinces of Nairobi & Central championed fact that groups had right of self-defense & provided massive financial support.
GDP growth	Negative	Positive GDP growth 1985-99 (4.30), consistent with no-war countries (1.74), but higher.	Consistent	
Mountainous terrain	Positive	Percent mountains (26.3) higher than no-war countries (15.17) but close to war countries (24.93).	Inconsistent	
Geographic dispersion	Positive	Higher (0.813) than in both war (0.603) & no-war countries (0.569).	Inconsistent	

[126] The values for different variables are taken from the CH dataset and from Kimenyi and Ndung'u 2002.

Social fractionalization	Negative	Data not available, but likely moderate to high given high ethnic fractionalization but comparatively low religious fractionalization.	Consistent	
Population size	Positive	Higher than the mean (17.05 for 1990-99 compared to 15.35 in natural logs).	Inconsistent	
Ethnic fractionalization	Negative, but non-significant	High degree of ethnic fractionalization (81) relative to war (52.6) and no-war countries (38.6). Actual ethnic fractionalization higher given intra-group divisions.	Consistent[127] (But not a CH significant factor)	More accurate measure of ethnic fractionalization would capture divisions within ethnic groups, e.g. the Luhya consist of at least 15 smaller groups.
Religious fractionalization	Non-significant	Lower degree of religious fractionalization (20) relative to war (37.7) and no-war countries (36).	Consistent (But not a CH significant factor)	
Ethnic dominance	Positive	No ethnic dominance; largest ethnic group (Kikuyu) corresponds to 20.8% of the population, but Kalenjin controlled the state.	Consistent by CH, inconsistent by case study measurement.	More accurate measure of ethnic dominance may be one of ethno-*political* dominance: the Kalenjin have controlled the state despite being 11.5% of the population.
Income inequality	Non-significant	High income inequality (0.54) relative to civil (0.41) and non-civil war countries (0.41).	Consistent (Not significant in CH)	
Democracy	Non-significant	Non-democratic regime (average polity score for 1990-99 = -4.3), but an anocracy, which may raise risk of civil war (Hegre et al. 2001, Fearon & Laitin 2003).	Consistent (Not significant in CH)	Regime stability may explain war avoidance: no regime change in over 2 decades may have implied no opportunity for anti-government rebellion.

[127] The effect of ethnic fractionalization on Kenya's conflict history is actually a bit confusing. On one hand, the high degree of ethnic fractionalization is cited to be a key reason why Kenya did not experience civil war during the 1990s. On the other hand, ethnic fractionalization is also said to be one of the reasons for the sporadic ethnic violence: the authors find that of the 13 most ethnically-diverse districts in Kenya, 12 experienced violent ethnic conflict.

Peace duration	Negative	There have been no civil wars in Kenya.	Consistent	Memory of pre-independence conflicts could serve as a deterrent to civil war. Most of those resettled in the conflict areas were casualties of the Mau Mau rebellion against colonial rule, which dampened retaliation effects that can lead to civil war.

Non-CH Variables of possible interest for Civil War Avoidance

- *Presence of international community:* there was a lull in the ethnic/government violence in March 1993 when IMF and World Bank officials were present in Kenya.[128]

[128] While the authors offer this as a possible contributing factor to war avoidance, the point is not developed either theoretically or empirically.

Lebanon[129]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Lebanon 1975-1991*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Low (.05) compared to .149 for civil war group and .169 for no civil war group.	Inconsistent	Not an important feature of this conflict.
GDP per capita	Negative	Low (1474) compared to civil war countries (1645), but author asserts it was high compared to the region and to developing countries generally.	Consistent	Uneven development among regions a factor in that it gave rise to exploitable socio/sectarian divisions.
Diaspora	Positive	Not quantifiable. Conjecture is that impact was small.	Inconsistent	National economy benefited from remittances of those skilled workers and professionals who fled and sought work abroad. Diaspora funding in this case probably did not inflame the conflict.
GDP growth	Negative	High (1.875) compared even to no civil war groups (1.74).	Inconsistent	Education was high, suggesting that secondary school enrollment is not a good proxy for economic opportunity. Estimates of unemployment between 1969 and 1974 are imprecise ("from 3.1% to 20%").
Mountainous terrain	Positive	Not mentioned	N/A	
Geographic dispersion	Positive	.645 compared to .603 for civil war group and.569 for no civil war group.	Consistent	
Social fractionalization	Negative	Low – Eighteen officially recognized religious communities, but 3 dominant	Inconsistent	
Population size	Positive	Low – 14.78 compared to 15.35 for 1990-95 in natural logs	Inconsistent	

[129] The values for different variables are taken from the CH dataset and from Makdisi and Sadaka 2002.

Ethnic fractionalization	Negative, but non-significant	Low – ethnically homogeneous.	Consistent (Not significant in CH)	
Religious fractionalization	Non-significant	High – each of 3 dominant religious groups makes up 20-30% of population.	Consistent (Not significant in CH)	Significant in this case as the predominant line along which fighting took place. Author raises the question of whether or not religious and ethnic fractionalization can be considered substitutes in terms of their influence on civil war onset.
Ethnic dominance	Positive	Coded as 0 in this case, which maybe incorrect.	Inconsistent	Coding appears to be incorrect. Population is ethnically homogeneous. Not clear in CH how they handle completely homogeneous populations.
Income inequality	Non-significant	Not noted.	Consistent (Not significant in CH)	
Democracy	Non-significant	Non-democratic regime (polity score = -3)	Consistent (Not significant in CH)	Initial conflict was over balance of power among parties, even though coded as non-democracy.
Peace duration	Negative	Peace duration (136) lower than average for civil war group (221).	Consistent	

Non-CH Variables of possible interest for Civil War Onset

- *External conflict* – Presence of PLO in Lebanon complicated the already delicate balance of power among domestic political forces and led to grievances regarding power sharing arrangements. The presence of the PLO also led to Israeli and Syrian involvement, which complicated the conflict even more. The unanswered counterfactual is whether the religious divisions would have been enough to lead to war in the absence of external intervention.

Variables of possible interest for Civil War Duration

- *Government fiscal and monetary resilience* – During the war, monetary and fiscal policies remained effective. In addition, the private sector remained fairly robust, with destruction of Beirut city center leading to proliferation of local or regional business centers. This is somewhat counterintuitive, but its impact on civil war duration is not clear.
- *War economy* – Benefits to warring parties sustained the conflict. These included looting, taxation, confiscation of property, currency speculation, and drug trade.
- *International community* – External interventions included provision of arms, financing, and direct military interventions by Syria, Israel, UN, US.
- *Division in protagonists* – Multiple parties who at various points fought among themselves. Alliances shifted, and government representation included some sympathetic to the various groups, even while the government fought those groups.

Mali[130]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Mali 1990-96*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Primary commodity exports/GDP (0.144) lower than non-civil war (0.169) & very close to civil war countries (0.149) Gold is Mali's 3rd largest export. & there are also diamonds.	Consistent	Gold & diamonds are located in other parts of Mali & at no time did the rebels seek access to or revenue from the mines. Looting nevertheless occurred: initial weapons were stolen from the government & later cattle theft helped finance purchase of arms.
GDP per capita	Negative	Very low GDP per capita (532 in 1990-95), compared to civil war countries (1645) & especially to non-civil countries (4219).	Consistent	Higher levels of education combined with poor employment prospects are both a source of grievance & a better proxy for opportunity cost of rebellion.
Diaspora	Positive	Following the droughts in the 1970s, many Touareg settled in Libya. Their numbers there increased after Ghadaffy welcomed them in 1980.	Consistent	Diaspora was not a source of financing or of weapons since most initial weapons were stolen from the Mali government, but mattered as the source of many of the trained rebels.
GDP growth	Negative	Low growth in 1980-85 (1.26) & in period of war onset (0.43) compared to non-civil war countries (1.74) but positive contrary to other civil war countries (-0.23) .	Consistent	More important was the mid-1980s recession in Libya & concomitant decrease in demand for immigrant labor because it left a class of unemployed nationalist Touareg intellectuals no longer welcome in Libya.
Mountainous terrain	Positive	Very few mountains (0.4%of area).	Inconsistent	Most of Mali's mountains are in the North, which is also a desert. This hampered military's ability to access the area & military victories occurred only with aid of other rebels who had already stopped fighting.
Geographic dispersion	Positive	CH: high Gini coefficient for geographic dispersion of population in Mali (0.77) even for civil war countries (0.60).	Inconsistent	Ethnic groups are nevertheless regionally concentrated, e.g. Touareg & Arabs are concentrated in far North.

[130] The values for different variables are taken from the CH dataset and from Humphreys and Mohamed 2003.

Social fractionalization	Negative	Moderate: Touaregs & Arabs are Muslim in a Muslim country, but while these groups are dominant in the far North, there are other groups living there as well.	Inconsistent	
Population size	Positive	Slightly higher than the mean (15.95 compared to 15.35 for 1990-95 in natural logs).	Consistent	Population may not matter for the war took place in the least densely populated area of Africa.
Ethnic fractionalization	Negative, but non-significant	High degree of ethnic fractionalization (78) relative to civil (52.6) and non-civil war countries (38.6).	Consistent (Not significant in CH)	Ethnic polarization ("blacks" vs. "whites") is more significant.
Religious fractionalization	Non-significant	Low degree of religious fractionalization (10) relative to civil (37.7) and non-civil war countries (36).	Consistent (Not significant in CH)	
Ethnic dominance	Positive	The Mandé speaking groups, 50% of the population, are a national majority, but it is the Bambara that are dominant in the political center.	Consistent	Would seem to need a measure of ethno-*political* dominance.
Income inequality	Non-significant	No Gini index available for Mail, but Azawad is the poorest area of Mali, which suggests that there is inter-regional income inequality.	Inconsistent (But not significant in CH)	
Democracy	Non-significant	Non-democratic regime (polity score = -7 1969-90)	Consistent (Not significant in CH)	
Peace duration	Negative	There were no civil wars in Mali from independence to the beginning of the present conflict.	Inconsistent	Duration of peace from pre-independence conflicts also matters as these conflicts could be sources of grievance & be used to legitimate new actions.

Non-CH Variables of possible interest for Civil War Onset

- *Region's distance from political center relative to other regions.* While Azawad (northern Mali) is formally contiguous with the south, the desert zones are relatively inaccessible from the capital, due to distance and a lack of infrastructure. Azawad is thus the country's most remote region, which has been argued to be a reason why it should be independent.
- *Economic marginalization of region* (a source of grievance). Lack of investments in region have caused it to be in an exceptionally poor condition in terms of the provision of health and education, relative to the other regions.
- *Discrimination with respect to land rights* (a source of grievance). Property law allows state to claim rights not only to unregistered land, but also to land left fallow. This privileges sedentary groups and discriminates against the nomadic Touareg.
- *Regime transition and instability.* In 1990 the government of Mali's second republic was in a state of crisis and toppled within seven months of the start of the rebellion (but not as a result of the rebellion).
- *Political marginalization* (a source of grievance). For example, just 2 Touareg & 2 Arabs appointed as ministers in all post-independence cabinets up to 1990, with 3 of these appointed only in the late 1980s.
- *Cultural discrimination* (a source of grievance). Denigration of culture, epitomized by attempt to replace Tamacheq with a Latin script.
- *Ethnic polarization.* While Mali is ethnically heterogeneous, the Touareg & Arab groups are considered to be racially distinct as well ("white" or "red") from the rest of the country and this distinction has played a key role in the inter-communal phase of the war.
- *Marginalization from traditional elites.* The insurgents were drawn from groups that had quit Mali after the droughts of themid-1970s and who felt socially marginalized from the Touareg elites left behind. These elites had been given special privileges by the regime and were held responsible for the diversion of food aid sent in response to the droughts. Their lack of assistance during the catastrophe was a source of bitterness, and the marginalization of the combatants from the traditional elites meant that the former had no access to the albeit limited channels of political communication that had been established by the state.
- *Neighborhood effects.* Ideological contagion from the Algerian War of Independence 1954-62 during which FLN representatives mounted fund-raising and awareness-raising campaigns throughout the Azawad region; and from liberation fighters in Niger and Western Sahara. Niger provided refuge for the Malian rebels, and there were small numbers of fighters from other countries. The most important neighborhood effect is from Libya, which welcomed Touareg immigrants, provided military training these immigrants, encouraged the formation of their liberation movements, and accelerated the timing of the conflict when, in the late 1980s, oil-shocks led to a recession that decreased the demand for immigrant labor and Ghadaffy's defeat in Chad made Touareg fighters redundant.

Variables of possible interest for Civil War Duration

- *Difficult terrain* (e.g. desert, mountains and forest) makes military victory less likely by preventing access for the government to rebel bases, but it is not clear whether or not this directly translates into longer wars, since factors that affect the ability of groups to achieve a negotiated settlement should be more important.
- *Lack of sustainable lootable resources* (i.e. cattle, the one resource looted by the rebels, could not be replenished annually) increased the attractiveness of a negotiated settlement and thus decreased the duration of the conflict.
- *Descent into inter-communal conflict.* The Tamanrasset Accords signed in January 1991 led to a decline in organized violence, which furthered decreased following the National Pact in April 1992. The conflict then became characterized by inter-communal violence polarized by racial divisions both among ethnic blocks and within ethnic groups, the Touareg in particular. Ethnic variation within the Touareg groups, something often missed in econometric analysis, helps explain rebel force fragmentation and variation in the success of negotiations, for while some groups were faithful to the 1991 peace accords, others continued fighting and prolonged the war.
- *International actors threatened by secession.*. While France pressured Mali from the beginning of the conflict to find a peaceful solution and exposed abuses of the Touaregs in a media campaign, neighboring countries fearful of the spread of the conflict exerted the most influence in achieving an end to the conflict. Most significant were Algeria's actions. The Azawad conflict took place in a region bordering southern Algeria, which is home to the Berbers—a group in similar living conditions to the Touareg. Fearful of a similar conflict and of a Berber state on its borders, Algeria was strongly opposed to the independence of Azawad and was able to put pressure on the rebel groups through its control of supply routes and over Touareg exiles and refugees in Algeria. As a major supplier of oil, military and economic aid, Algeria was also able to make its voice heard with the Malian government. As a result, the issue of Azawad was taken off the agenda, which helped remove a potential stumbling block to negotiations.

Mozambique[131]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Mozambique 1976-1992*[132]	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	High (0.21) compared to war (0.149) & no-war (0.169) countries according to CH, but low (0.099) according to case study. From 1982-92 Renamo traded ivory & sold game meat.	Consistent according to CH, inconsistent according to case study	Financial support from external actors can substitute for lootable commodities in financing the onset of a rebellion. Looting of stores & households, plus extortion can also help sustain a rebellion.
GDP per capita	Negative	Slightly lower (1497) than in other war countries (1645). Situation worsened with Frelimo's rural economic strategy (i.e. collective farming & government stores), losses sustained from the sanctions against Rhodesia & South Africa's limits on migration of Mozambican mine workers.	Consistent	Poverty's relationship to war onset is more complicated than that predicted by CH. In phase 1 Renamo recruits were Frelimo's victims of repression, not unemployed men, while in phase 2 recruits were mostly poor peasants. But in both phases many were coerced to join. Still, material benefits were a key reason why the recruits stayed.
Diaspora	Positive	Split in liberation movement solidified Southern dominance of Frelimo; many from North & Center then fled to Zambia, Kenya & Western countries. Many victims of Frelimo repression fled to Rhodesia, South Africa, & Portugal.	Consistent	Diaspora may increase risk of war also by forming the pool of initial recruits to rebel organization, e.g. Renamo's first recruits were from the Mozambican diaspora in Rhodesia.
GDP growth	Negative	High growth (3.37) for 1970-75 compared to war (-0.23) & no-war (1.74) countries.	Inconsistent	

[131] The values for different variables are taken from the CH dataset and from Weinstein and Francisco 2002.
[132] The authors argue that the war exhibited two phases: 1976-1979 and 1981-1996. In cases where a determinant was relevant for only one of the phases, it has been noted in the table.

Mountainous terrain	Positive	Few mountains (2.4% of area) compared to war (24.9%) & no-war (15.2%) countries.	Inconsistent	
Geographic dispersion	Positive	Higher (0.617) than both war (0.603) & no-war (0.569) countries. Magnified by Frelimo attempts to group all peasants into collectivities.	Consistent	
Social fractionalization	Negative	Data not available in CH, but possibly high, e.g. infighting among liberation movements created diaspora & discontent regional groups which were later recruited into Renamo.	Inconsistent	Rebel force fractionalization in prior conflicts may increase risk for civil war by creating opposition that has the resources & skills to rebel violently.
Population size	Positive	Higher than mean (16.34 versus 15.35 in natural logs).	Consistent	
Ethnic fractionalization	Negative, but non-significant	High fractionalization (65) relative to war (52.6) & no-war (38.6) countries.	Inconsistent (Not significant in CH)	
Religious fractionalization	Non-significant	Low (10) relative to war (37.7) & no-war (36) countries.	Inconsistent (Not significant in CH)	
Ethnic dominance	Positive	The Macua-Lowme are the numerically dominant group. Frelimo's leadership was southern-dominated, which caused the regional splits in liberation movement that led to civil war onset. But in phase 2 recruits came from all ethno-linguistic backgrounds.		Regional political dominance may increase risk of civil war onset, but may not be an necessary factor, perhaps if the material incentives for joining a rebel organization are strong enough.
Income inequality	Non-significant	No data available in CH.	Consistent (Not significant in CH)	No mention of income inequality

Democracy	Non-significant	Non-democratic regime (polity score = -8). While recruits in both phases were from groups repressed by regime, they were motivated more by the material benefits of war than by grievances.	Inconsistent (Not significant in CH)	While government repression may be cited a grievance against the regime, it still may not be a direct motivation for the violence, i.e. "doing well out of war" may still be key focus.
Peace duration	Negative	No prior *civil* war, but war broke out 1 year after end of 10-year war of independence.	Inconsistent	Just like prior civil wars, colonial wars may positively affect civil war onset.

Non-CH Variables of possible interest for Civil War Onset

- *External actors.* By deciding to provide safe havens for all movements fighting for liberation across the continent and by joining in the UN-sponsored sanctions against Rhodesia, the Frelimo government incurred the anger of Rhodesia and South Africa. As a result, it was Rhodesia that formed Renamo, initially as a guerilla force capable of fighting within Mozambique to defeat the ZANU guerillas. Rhodesia trained, armed and financed Renamo, and even dictated its strategy, until 1979. South Africa then began to train and supply Renamo, but unlike Rhodesia, it encouraged Renamo to develop clear political ideology, structure and military autonomy.
- *The Cold War.* Mozambique achieved independence at time when US and USSR were competing for influence and control in Africa and other parts of the developing world. By supporting the liberation movements and later becoming a "Marxist state," Mozambique allied itself with the Eastern bloc while South Africa and Rhodesia—the "key bulwarks against communism in the region" and key supporters of Renamo—received support from the US and Western European nations.
- *Disenfranchisement and repression of colonial beneficiaries.* Initial recruits came from privileged classes subject to punishment at hands of Frelimo's government: advantaged citizens were forced into reeducation camps and prison for supposed counter-revolutionary activities. Singled-out were former Mozambican members of the police force, the army and the intelligence operations including the *flechas*, a group of highly trained, special forces that operated as part of the colonial army against the guerilla struggle. In phase 2, Renamo found support from the *régulos*—traditional authorities who had been ejected from public life by Frelimo—who helped Renamo with its recruitment efforts.
- *State inability to control all of its territory.* As a liberation movement, Frelimo barely penetrated territory before taking power, which meant that as a government Frelimo had to fill a void left by the Portuguese while lacking the capacity to manage the territory. This inability was presumably magnified by Frelimo's repression of all those connected with colonial regime, i.e. if members of the colonial security forces were still in favor, they could have helped out (and in fact there very likely would not have been a civil war).

Nigeria[133]

CH variable	*Association with war onset in CH model*	*Values for Variable Period 1: 1967-1970 (war) Period 2: 1980-1985 (war) Period 3: 1985-1999 (no-war)*[134]	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	P1: Slightly lower (0.123) than war (0.149) & no-war (0.169) countries. Oil production began in 1958 & prospect of future oil wealth drove demand for secession. P2: At 0.277 close to highest risk share (0.32). But oil was irrelevant in Maitatsine war. P3: At 0.307 close to highest risk share. Nigeria is world's 6th largest oil exporter.	P1: Inconsistent with CH, Consistent with case study version P2: Consistent with CH, Inconsistent with case study P3: Inconsistent	P1: Regionally-concentrated oil reserves, particularly when oil revenue accrues to a central government controlled by rival ethnic group, are a key stimulus for secessionist civil war, even if economy is not yet highly dependent on oil production. P3: Oil looted from pipeline leaks & sabotage and ransom payments financed Ijaw rebellion, a low-level armed conflict.
GDP per capita	Negative	P1: Low (567) compared to war (1645) & no-war (4219) countries, but GNI in 1960 more than combined GNI of 12 new francophone states. P2: Low (1245). High unemployment, especially in urban areas; 18.7% in 1979. P3: Low (1017). Rising poverty; 66% of population under poverty line in 1996, compared to 28% in 1980.	P1: Consistent, but situation brighter than numbers suggest. P2: Consistent P3: Inconsistent	P1: Many fighters came from regional army; hence poverty may not always be crucial for rebel recruitment. P2: Unemployment may be better measure of opportunity cost of rebel labor; most rebels in Maitatsine war were unemployed urban migrants & refugees.

[133] The values for different variables are taken from the CH dataset and from Zinn 2003.
[134] For periods of war, values for the time-sensitive variables in the CH model which may be affected by war onset (e.g. GDP per capita) are given for the 5-period prior to war onset. For period of no-war, variable averages for the entire period are given.

Diaspora	Positive	P1: No mention of a diaspora. P2: Influx of refugees Niger, Chad & Cameroon formed a rebel recruitment pool. P3: No mention of a diaspora.	P1: Inconsistent P2: Consistent P3: Consistent	P2: Refugees, i.e. diasporas from other countries, may be a source of rebel labor.
GDP growth	Negative	P1: Positive (0.19) contrary to war countries (-0.23), lower than no war countries (1.74). P2: Very low (-5.2). P3: High (6.8).	P1: Unclear P2: Consistent P3: Consis tent	
Mountainous terrain	Positive	P1-3: Very few mountains (2.4%). Some difficult terrain: Niger Delta is an intricate network of creeks & swamps.	P1: Inconsistent P2: Inconsistent P3: Consistent	
Geographic dispersion	Positive	P1-3: Lower (0.555) than in both war (0.603) & non-war (0.569) countries.	P1: Inconsistent P2: Inconsistent P3: Consistent	
Social fractionalization	Negative	P1-3: High, there are multiple often ranking cleavages, e.g: North v. South, Christian v. Muslim, Yoruba v. Ibo, dominant vs. minority groups	P1: Inconsistent P2: Inconsistent P3: Consistent	
Population size	Positive	P1-3: Higher than the mean (18.02 compared to 15.35 for in natural logs). Nigeria is Africa's most populous state.	P1: Consistent P2: Consistent P3: Inconsistent	
Ethnic fractionalization	Negative, but non-significant	P1-3: High (87) relative to war (52.6) & no-war (38.6) countries. There are at least 250 distinct ethnic groups, but 3 groups are dominant: Hausa-Fulani, Ibo & Yoruba.	P1: Inconsistent P2: Inconsistent P3: Consistent	Presence of dominant groups may at times supersede conflict-inhibiting effects of ethnic fractionalization, e.g. Biafran war. Other times it does not, e.g. period of war-avoidance.
Religious fractionalization	Non-significant	P1-3: High (50) relative to war (37.7) & no-war (36) countries. Ethno-religious polarization between Muslim Hausa-Fulani & Christian Ibo & Yoruba. Fractionalization within Christians & Yoruba.	P1: Inconsistent P2: Inconsistent P3: Consistent (Not significant in CH)	Religious polarization (e.g. Muslims vs. Christians) may be more significant, especially when ranked with ethnicity.

Ethnic dominance	Positive	P1-3: No dominance in CH model; largest ethnic group (Hausa-Fulani) is 30% of the population. But Northerners have controlled government. P1 &3: Northern political dominance key grievance among southerners	P1: Inconsistent by CH, Consistent by case study P2: Inconsistent by CH, but variable not relevant P3: Consistent by CH, Inconsistent by case study	P1: What matters for war onset is political dominance, which can be held by a regional group.
Income inequality	Non-significant	P1-3: At 0.37 close war & no-war countries (0.41).	P1-3: Consistent (i.e. non-significant).	
Democracy	Non-significant	P1: Democracy (polity score = 8 for 1960-65, -7 afterwards P2: Return to democratic rule. in 1979 (polity score = 7). P3: Autocratic regime until May 1999 (polity score = -6).	P1-3: Inconsistent (Not significant in CH)	P1: Type of democratic system may affect conflict risk, e.g. majoritarianism facilitated Northern political dominance, a cause of the Biafran war. P2: Democracy may increase risk of war by encouraging strategy of partial repression.
Peace duration	Negative	P1: No prior war P2: Biafran war 1967-70 P3: Maitatsine war 1980-85	P1: Inconsistent P2: Consistent P3: Inconsistent	

CH Variables of possible interest for Civil War Onset

- *Colonial policy.* Although the Northern and Southern Protectorates of Nigeria were joined in 1914, the British continued to pursue different policies in those regions. That was the genesis of the ranked cleavage between the Muslim North and the Christian South, which persists as the most salient rift in Nigerian society, and also gave rise to uneven regional development, both of which were key contributing factors to the Biafran war. Other ways in which colonial policy affected war onset are the following. (1) Division of the southern region into the eastern and western regions in 1946 increased competition between the Ibo and Yoruba, which facilitated Northern domination of Nigerian politics—a key cause of the Biafran war. (2) Inter-regional struggle for government revenues—another key cause of the Biafran war— was stimulated by the Lyttleton Constitution of 1954, which created regional autonomy but centralized government revenue.
- *Prior massacres.* First serious calls for Eastern secession came in October 1966 after Northern troops and civilians massacred 30,000 Ibo and other Easterners. Allegations of the federal government's inability to protect the lives of Easterners and its complicity in the massacres of 1966 served as a battle-dry rallying Easterners to the cause of secession.
- *Abrogation of autonomy agreements, especially when they affect a region's control of its natural resources.* The Aburi Agreement of January 1967 regionalized the national army and mandated approval by regional military governments for any new federal legislation. This was abrogated in May 1967 with the unilateral creation of new states, which would have deprived the East of its oil wealth. This was the factor that motivated the Eastern region to declare independence, which highlights the centrality of oil in spurring the civil war.
- *Leadership.* The impetus for both the Biafran War and the Maitatsine War was driven largely by the respective leaders: the East's military governor and the founder of the Maitatsine Sect.
- *Partial repression.* Partial repression of the Maitatsine sect not only left open the possibility for rebellion, but also stimulated the radicalization of the group and in so doing was the direct trigger for the outbreak of the war.

Variables of possible interest for Civil War Avoidance

- *Ethnic dominance of both political and military leadership* may limit the possibility of a successful coup by officers of the rival ethnic group because the top military commanders—due to ethnic ties—remain loyal to the government.
- *Alternative less costly and more effective options for registering dissent.* The key reason why the Ijaw rebellion of the late 1990s failed to escalate to the level of civil war is that militant actions against oil multinational were both less costly in terms of rebel deaths and more effective in terms of gaining government concessions. The Ijaw consequently focused their resources primarily on militant actions, rather than on anti-government violence (although there was some anti-government violence).
- *Selective repression, especially detainment of a rebel group's leader,* can effectively prevent conflict escalation in the long term (in the short term there may be violent protests of the arrest) particularly when the rebellion is heavily dependent on elite mobilization of the public and there is not much underlying public support for the rebels. For example, the arrest and detainment of the leader of the Muslim Brotherhood was the key reason why that rebellion did not escalate to the level of civil war.

Russia[135]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Russia 1992-2000*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Chechnya has valuable oil reserves.	Consistent	Russian high military command makes money for itself by siphoning off oil production. No comment on PCE relationship to crime.
GDP per capita	Negative	Real industrial production per capita, real income per capita measured	Inconsistent	No significant impact on crime rates.
Diaspora	Positive	Significant Chechen diaspora community has funded civil war there.	Consistent	Diaspora community is both within and outside the former Soviet Union. Funding came via both licit and illicit activities of this diaspora. No comment on diaspora relationship to crime.
GDP growth	Negative	Real income growth measured	Consistent	Real income growth significantly diminishes crime rates. Likewise, crime rates grew significantly after the shocks of price liberalization of 1992 and the ruble default of 1998.
Mountainous terrain	Positive		N/A	No comment on terrain, but large negative correlation between climate and violence – as temperature decreases, crime rates increase.
Geographic dispersion	Positive		Consistent	No comment on overall dispersion, but note the anomalous relationship between crime and geography in former USSR – crime is greater in secondary cities than in major cities, a legacy of the forced settlement of criminals outside the major cities in USSR.
Social fractionalization	Negative		N/A	
Population size	Positive		N/A	
Ethnic fractionalization	Negative, but non-significant	High – more than 100 ethnic groups and 21 national Republics with either distinct ethnic majority or significant presence of titular group.	Consistent (Not significant in CH)	Fractionalization appears to lead to higher rates of criminal violence, contrary to the CH finding of a negative relationship between fractionalization and civil war.

[135] The values for different variables are taken from the CH dataset and from Adrienko and Shelley 2002. Note: This case study focuses on crime in Russia rather than civil war, though there some attention is paid to the conflict in Chechnya.

Religious fractionalization	Non-significant		Not significant in CH	Significant funding for Chechen side by Islamic forces outside Russia has led to a greater emphasis on religious sources of that conflict.
Ethnic dominance	Positive	Yes – ethnic Russians constitute 80% of population	Consistent	Violent crimes are sensitive to polarization, based on regional analysis.
Income inequality	Non-significant	High	Consistent (Not significant in CH)	Physical intimidation was rampant during the privatization process. Higher levels of violence and more income inequality thus occurred in regions where more small businesses were privatized.
Democracy	Non-significant		Not significant in CH	
Peace duration	Negative	Peace duration extremely high – no civil wars inside USSR since 1922.	Inconsistent	Significant and long-term antagonism of Chechens toward Russia contributed to war there.

Non-CH Variables of possible interest for Crime Incidence/Increase

- *History of dealing with crime* – Both political and criminal prisoners during Stalin's time were sent to labor camps, where the criminal underworld grew through recruitment. Many of these were released in the post-Stalin era and the crime rate subsequently grew. A similar process occurred with the liberalization of the justice system and the large amnesty under perestroika and glasnost.
- *Prohibition* – Similar to the US in the 1920s, the introduction of prohibition in 1985 contributed to a rise in organized crime.
- *Availability of weapons* – Increased availability of weapons after fall of USSR led to significant trade in small weapons.
- *Decline in medical care* – Led to more who might have been assault victims becoming homicide victims.
- *Corruption* – High level of corruption and decreased law enforcement led to fewer crimes being prosecuted, fewer being reported, and a concurrent low deterrence factor from law enforcement. The law enforcement apparatus is significantly infiltrated by crime groups. The prosecution that does occur is mostly of low-level criminals.
- *Human development effect* – Measured in terms of life expectancy and education has a strong negative effect on criminal violence.
- *Population mobility* – No strong confirmation of common Russian belief that migration and immigration lead to higher crime.

Senegal[136]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Senegal 1989-1999*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Primary commodity exports/GDP higher than both civil and no-war countries. High-value lootable resources in Casamance (cannabis, timber, and cashew nuts).	Consistent	Natural resource extraction & looting irrelevant for the *onset* of war (initially financed by subscriptions). Later extortion of cannabis & cashew nuts, vehicle hold-ups & store-pillaging financed the rebels, while the army extorted timber.
GDP per capita	Negative	Low GDP per capita (1163 in 1990-95), compared to civil war countries (1645) & especially to non-civil countries (4219).	Consistent	Regional income inequality is a significant factor
Diaspora	Positive	In 1990, Casamançais refugees settled in Guinea-Bissau & the Gambia, sheltered by cross border co-ethnics & kin.	Inconsistent	No evidence of financing by diasporas or of their harboring of guerillas
GDP growth	Negative	Negative GDP growth from 1980-85 and low growth in period of civil war onset, as in other civil war countries, albeit lower	Consistent	Regional GDP growth is a significant factor. In early 1990 there was an 80% reduction in regional income.
Mountainous terrain	Positive	No mountains.	Inconsistent	Like Senegal, 38% of which is covered by forests, Casamance is a forested area. But this did not affect war onset (only war duration).
Geographic dispersion	Positive	Ethnic groups in Senegal, and especially in Casamance, are regionally concentrated.	Inconsistent	

[136] The values for different variables are taken from the CH dataset and from Humphreys and Mohamed 2003.

Social fractionalization	Negative	High: Casamance is the most religiously diverse region of Senegal, lower Casamance is the most ethnically-heterogeneous region & its dominant group, the Diola, is internally fragmented.	Inconsistent	
Population size	Positive	Slightly higher than the mean (15.81 compared to 15.35 for 1990-95 in natural logs)		
Ethnic fractionalization	Negative, but non-significant	High degree of ethnic fractionalization (72) relative to civil (52.6) and non-civil war countries (38.6).	Inconsistent (Not significant in CH)	
Religious fractionalization	Non-significant	Low degree of religious fractionalization (6) relative to civil (37.7) and non-civil war countries (36).	Consistent (Not significant in CH)	
Ethnic dominance	Positive	No ethnic group makes up at least 45% of the population, but Northerners dominate the political center.	Inconsistent	Measure of ethnic dominance should include politically-dominant regional groups.
Income inequality	Non-significant	High income inequality (0.54) relative to civil (0.41) and non-civil war countries (0.41)	Consistent – i.e. not significant	Casamance is Senegal's region with the greatest horizontal inequality (income cleavages reinforced by ethnic cleavages), which suggests a new operationalization of inequality.
Democracy	Non-significant	Non-democratic regime (polity score = -1)	Consistent (Not significant in CH)	This is an anocracy, but contrary to Fearon & Laitin, not considered a significant factor.
Peace duration	Negative	There were no civil wars in Senegal from independence to the beginning of the present conflict.	Inconsistent	Duration of peace from pre-independence conflicts also matters as these conflicts could be sources of grievance & be used to legitimate new actions.

Non-CH Variables of possible interest for Civil War Onset

- *Region's distance from political center relative to other regions* (a source of grievance). Casamance is disjoint from Senegal (separated by the Gambia) and thus the most remote region of the country. Casamançais claim that the non-contiguity of their region is a confirmation of the legitimacy of their struggle
- *Unique conflict and colonial history* (a source of grievance). Casamance had an ambiguous & now highly contested administrative status under colonialism, especially from 1854-1939, due in part to the fact that, unlike other parts of the country, the French did not succeed in getting control of the area until the early 20th century.
- *Economic exploitation & marginalization* (a source of grievance). Casamançais argue that Casamance has great potential for wealth but remains very poor & underdeveloped due to extraction & t a lack of investment in public goods by northerners. But in this respect Casamance is no worse off than other non-center regions.
- *Discrimination with respect to land rights* (a source of grievance). Large-scale expropriation of indigenous land in Casamance began in 1979.
- *Political marginalization* (a source of grievance). While the Casamançais have claimed to be politically marginalized, there is no evidence that Casamance has been treated worse than other regions & some Casamançais have occupied prominent Cabinet posts throughout the post-independence period.
- *Government repression* (a motivating factor for violence). Rebellion began as a peaceful movement with broad-based support & turned to rebellion largely in response to the government repression following the demonstrations.
- *Cultural discrimination* (a source of grievance). Denigration of Casamançais through the imposition of Wolof in the media, education & administration.
- *Regional effects.* Ideological contagion from the independence struggle in Guinea-Bissau
- *External aid.* Use of Guinea-Bissau as a location of bases, a market for goods, & possibly as a source for arms.
- *Regime transition & instability*. Change in non-democratic regime in 1978 reflected a change in the manner in which the Casamance dossier was managed, i.e. the new leader was less inclined to negotiate, hence the repressive response to the demonstrations, which triggered the violence.

Variables of possible interest for Civil War Duration

- *Natural resource extraction* positively affects the duration of civil war via four mechanisms: (1) makes financing of conflict possible even without popular support; (2) makes conflict more lucrative than peace for some groups; (3) reduces rebel cohesion (small splinter groups can still be viable) and thus makes negotiations more difficult; and (4) signals the viability of an independent state and makes compromise on independence less attractive.
- *Difficult terrain* (e.g. desert, mountains and forest) makes military victory less likely by preventing access for the government to rebel bases, but it is not clear whether or not this directly translates into longer wars, since factors that affect the ability of groups to achieve a negotiated settlement should be more important.
- *Ethnicity as a source of rebel group cohesion.* Although there is limited support for this variable in the case of Casamance (while the rebels were largely Diola, there are many internal divisions within the group and there were non-Diola leaders independently controlling sections of the rebel movement), ethnicity could overcome the collective action costs of rebellion and thus prolong a war.
- *Effect of war on external actors.* Neighboring countries did not fear the spread of conflict because the cross-border kin were very small in number. Neither Guinea-Bissau nor the Gambia had strong motivations to bring the conflict to an end, very likely because both benefited from the war economy associated with the conflict: Guinea-Bissau, through the routing of cashew exports and as a market to areas more isolated from Senegalese markets, and the Gambia through the routing of cannabis and wood exports.

Sierra Leone[137]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Sierra Leone1991-96*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	Primary commodity exports/GDP (0.074) lower than both no-war countries (0.169) & civil war countries (0.149). CH underestimate diamond exports due to predominantly illicit nature of industry. In 1970s before formal diamond industry collapsed, diamonds were 50% of official exports & production hasn't declined.	Consistent	Illicit diamond industry thrived also prior to the conflict, often with government involvement & facilitated by the alluvial & widely dispersed nature of the diamonds. Rebel recruitment base consisted largely of illicit diamond diggers, suggesting a link between a high level of crime involving natural resource extraction and civil war onset.
GDP per capita	Negative	Low GDP per capita (901 in 1990-95), compared to civil war countries (1645) & especially to non-civil countries (4219).	Consistent	Rather than use GDP per capita to measure poverty, use more targeted measures: over 80% of population lived on less than $1/day & country ranked bottom on UNDP Human Development Index for 1991. Unemployment is also a good predictor.
Diaspora	Positive	No mention of a diaspora.	Unknown	
GDP growth	Negative	Negative GDP growth 1980-89 (-0.9), which is consistent other civil war countries (-0.23).	Consistent	
Mountainous terrain	Positive	Very few mountains (1.7% of area). No kind of terrain is mentioned by the case study to have been significant.	Inconsistent	
Geographic dispersion	Positive	Lower (0.486) than in both war (0.603) & non-war countries (0.569).	Inconsistent	

[137] The values for different variables are taken from the CH dataset and from Davies and Fofana 2003.

Social fractionalization	Negative	Data not available, but likely to be high given high ethnic fractionalization and moderate religious fractionalization.	Inconsistent	
Population size	Positive	Slightly lower than the mean (15.20 compared to 15.35 for 1990-95 in natural logs).	Inconsistent	
Ethnic fractionalization	Negative, but non-significant	High degree of ethnic fractionalization (77) relative to civil (52.6) and non-civil war countries (38.6).	Inconsistent (Not significant in CH)	
Religious fractionalization	Non-significant	Slightly lower degree of religious fractionalization (30) relative to civil (37.7) and non-civil war countries (36).	Consistent (Not significant in CH)	
Ethnic dominance	Positive	No ethnic dominance; largest ethnic group corresponds to 30% of the population.	Inconsistent	Measure should include regional political dominance. The ruling All People's Congress was dominated by Northerners & the rebellion started in the Southeast.
Income inequality	Non-significant	Low income inequality (0.29) relative to civil (0.41) and non-civil war countries (0.41).	Not significant in CH	
Democracy	Non-significant	Non-democratic regime (polity score = -7)	Consistent (Not significant in CH)	
Peace duration	Negative	There were no civil wars in Sierra Leone from independence to the beginning of the present conflict.	Inconsistent	Include peace duration from conflicts causing less than 1,000 deaths: e.g. the Ndorgbowusu rebellion of 1982 affected the onset of war as would a previous war, i.e. eased rebel recruitment, especially since the rebellion had been brutally suppressed , which increased the incentive to overthrow the government.

Non-CH Variables of possible interest for Civil War Onset

- *Historical urban bias in economic policy.* Rural marginalization increased the risk of civil war through three main mechanisms: (1) induced migration to towns and diamond-mining areas, which increased unemployment in those areas and expanded the pool of potential rebels; (2) provided a grievance-based justification for the rebellion and thus facilitated recruitment; and (3) corresponded to a weak state presence in rural areas.
- *Regional marginalization.* Despite providing much of the national wealth, the southeastern regions where the war started were marginalized by the northern-based All People's Congress and this induced many people to join the rebellion.
- *Level of crime prior to the conflict.* This variable has already been discussed in the table as it is related to CH's primary commodity exports/GDP variable. To repeat, an illicit diamond industry thrived also prior to the conflict, at times with government involvement. Rebel recruitment base consisted largely of illicit diamond diggers, suggesting a link between a high level of crime involving natural resource extraction and civil war onset. The growth and sustenance of such crime can be attributed to four main factors: informal economy, high unemployment, distortionary economic policy and illicit diamond trade:
  - *Informalization of the economy.* In the 1967 elections, opposition leader Siaka Stevens of the All People's Congress promised illicit miners support if he got their votes. The corporate Sierra Leone Selection Trust was nationalized, but crippled by the late 1970s by state-sponsored looting of its diamond resources through theft, illicit mining and political sabotage.
  - *Unemployment* is widespread among diamond diggers, which made them easy recruits for criminal extortion activities. (See also discussion of unemployment below.)
  - *Distortionary economic policy.* Exchange and price controls in response to the oil price shocks of the 1970s led to buoyant black markets for foreign currency and essential imports. In neighboring Liberia there were no exchange controls, the US dollar was used as the currency and therefore widely available and diamond export taxes were lower. A lucrative underground trade emerged involving smuggling diamonds often through Liberia to purchase scarce essential imports whose sales in black markets financed purchases of diamonds for further smuggling.
  - *Factors which aid the trade in conflict and illicit diamonds:* difficulty in determining a diamond's country of origin, tacit or explicit complicity of transit countries which "re-export" diamonds, and the secretive nature of the diamond industry for security reasons.
- *Human rights abuses* by puppet chiefs led to widespread grievances and to revenge-motivated enlistment in the rebel movement.
- *External intervention.* Desirous to spread his influence in West African and to install pro-Libyan puppet government, Ghadaffy provided finance and training to the future RUF leader and other Sierra Leonean dissidents. After Charles Taylor launched the Liberian civil war in 1989, he provided a base and some rebels for the RUF to launch the rebellion in March 1991.
- *Unemployment.* The distortionary economic policy of the 1980s increased unemployment, which most affected youths entering the labor force. Perceiving the corrupt and repressive "system" as the cause of their predicament, these youth became increasingly rebellious—spearheading anti-government agitations, resorting to crime and drugs, and finding inspiration in revolutionary exhortations such as reggae music and Ghadaffy's Green Book—and thus were easy recruits for illicit diamond digging and hence also for the rebellion.

Sudan[138]

CH variable	*Association with war onset in CH model*	*Values for Variable* *Period 1: first war 1955-72* *Period 2: peace 1972-83* *Period 3: second war 1983-02*	*Are Variable Values Consistent with War or No-War (observed outcome) for relevant period?*	*Refinements or revisions of the theory with respect to this variable – are any proposed by the authors?*
Primary Commodity Exports/GDP	Positive or inverted-U	P1: At 0.136 for 1960-74, lower than no-war (0.169) & war countries (0.149). P2: Low (0.092) for 1975-84. P3: Low (0.039) for 1985-89 (only years available). In 1999 Sudan first exported oil, 40years after exploration began. Government received 72% of total profits. Most oil reserves are in the South.	P1: Inconsistent P2: Consistent P3: Inconsistent	Although not explicitly stated in the case study, it is possible that the prospect of future gains from oil production was a motivation for the fighting on both sides. This would suggest that oil matter in the conflict even though the first export was not until 1999.
GDP per capita	Negative	P1: At independence per capita was about US$78, classifying Sudan one of the poorest countries. P2: Low (830 for 1975-84), compared to war (1645) & no war countries (4219). P3: Low (768) for 1985-99.	P1: Consistent P2: Inconsistent P3: Consistent	

[138] The values for different variables are taken from the CH dataset and Ali, Elbadawi and El-Batahani 2003.

Diaspora	Positive	P1: First war launched by political leaders & military personnel in exile after abrogation of autonomy agreements & Torit muntiny.[139] P2: No mention of diaspora. P3: No mention of diaspora.	P1: Consistent P2: Unknown P3: Unknown	
GDP growth	Negative	P1: High growth (4.24) 1960-74 compared to war (-0.23) & no-war countries (1.74). P2: High growth (8.62) for 1975-1984. Substantial FDI. P3: Negative growth (-0.89) 1985-94; strong growth (23.6) 1995-99 due to 1st oil exports.	P1: Inconsistent P2: Consistent P3: Consistent	
Mountainous terrain	Positive	P1-3: Few mountains (6.5% of area). No mention of terrain in case study.	P1: Inconsistent P2: Consistent P3: Inconsistent	
Geographic dispersion	Positive	P1-3: Higher (0.63) than in war (0.603) & non-war countries (0.569).	P1: Consistent P2: Inconsistent P3: Consistent	
Social fractionalization	Negative	P1-3: Higher index value (0.67) compared to average Sub-Saharan country (0.61).	P1: Inconsistent P2: Consistent P3: Inconsistent	
Population size	Positive	Slightly lower than the mean (16.66 compared to 15.35 for 1960-99 in natural logs).	P1: Inconsistent P2: Consistent P3: Inconsistent	
Ethnic fractionalization	Negative, but non-significant	P1-3: High degree of ethnic fractionalization (73) relative to war (52.6) and no-war countries (38.6).	P1: Inconsistent P2: Consistent P3: Inconsistent (Not significant in CH)	

[139] There is a time consistency problem here because on one hand the case study says that the Torit massacre (1955) was the first event of the war (p. 3-4), but on the other hand it argues that the first insurgency was launched in part by military personnel who fled the country after the Torit mutiny (p. 11).

Religious fractionalization	Non-significant	P1-3: Slightly lower degree of religious fractionalization (30) relative to war (37.7) & no-war countries (36). But high religious polarization (0.775).	P1: Consistent P2: Inconsistent P3: Consistent (Not significant in CH)	Religion may increase the risk of war when it is polarized and/or politicized, e.g. Northern policies aimed at imposing Islam were a key southern grievance.
Ethnic dominance	Positive	P1-3: No ethnic dominance; largest ethnic group (Arabs) is 38.9% of the population. The government has been controlled by Northerners from independence to present & ethnic polarization is high (0.625).		Measure should include ethno-regional political dominance (in Sudan facilitated by economic & educative differentials & by geographically-unbalanced political institutions, all colonial legacies). Ethnic polarization may capture more accurately effect of ethnicity on civil war.
Income inequality	Non-significant	P1: Slightly higher (0.44), P2: Slightly lower (0.39), P3: Slightly lower (0.37), all relative to war (0.41) & no-war countries (0.41).	P1-3: Unknown	
Democracy	Non-significant	P1: Anocratic regime (polity score = -1.87) P2: Autocratic regime (polity score = -7). Southern political institutions were democratic & largely autonomous. P3: Anocratic regime (polity score = -3.73)	P1: Consistent P2: Consistent P3: Consistent (Not significant in CH)	
Peace duration	Negative	P1-3: Dates of civil wars from case study: 1955-72 & 1983-2002. CH peg the start of the first war in 1963.	P1: Inconsistent P2: Inconsistent P3: Consistent	

Non-CH Variables of possible interest for Civil War Onset

- *Colonial history/policy*. Southern policies of colonial administration from 1920-1947—which sought to insulate the South from the North, under-invested in education, and provided for only limited economic development compared to development policy in the North—shaped the preconditions that led to the outbreak of civil war in 1955. The initial rationale of these policies was to prepare the South for separate independence and although they were abandoned in the late 1940s, their damage had already been done: religious and cultural polarization between the two regions had been reinforced; under-investment in education paved the way for Northern dominance of government and civil service positions; and economic marginalization in an already poor country made the opportunity cost for Southern rebellion very low.
- *Abrogated agreements for autonomy.* Prior to independence, southern representatives in the Parliament demanded, and got the consent of their northern colleagues, that a pledge for the future establishment of a federal system of government be made in return for their agreement to the declaration of independence. However, post-independence governments construed the call for federation as a pretext for separation and penal sanctions were imposed on those who stood for the federal principle. This led several political leaders and intellectuals to take refuge in neighboring countries and many of them joined the military personnel who fled the country after the Torit massacre to launch the first insurgency. Peace was maintained between 1972-1983 by the Addis Ababa agreement which created regional autonomy for the South with full-fledge democratic institutions, including a regional parliament and government. But these democratic institutions were confined to the South and abrogation of this agreement was the key cause of the return to civil war in 1983.
- *Development Gap.* During colonial times, large investments in irrigated agriculture and transportation were made in the North while investments in the South were limited to small rubber plantations. The South's economic marginalization instigated by this policy only worsened with time and was a key grievance. During the inter-war period there was an increase in development money being channeled to the South, but few of the projects were actually implemented.
- *External support.* Unification of Anya Nya army cam in 1970 largely through the support of Israel and brokerage by Uganda. Up to 1991 Ethiopia provided the main launching and training grounds to the SPLA/SPLM in addition to military supplies. Eritrea offered training bases starting in 1995 and publicly supported Sudan opposition forces by hosting the official headquarters of the National Democratic Alliance. Uganda supported the SPLA by providing access to arms and at times sending its own troops across the Sudan border in military campaigns involving actual combat. Ethiopia, Eritrea and Uganda all received aid from the United States. Also, Christian missionaries and non-neighboring countries motivated by religious concerns may have
- *Neighborhood effects.* Out of Sudan's eight original neighbors (i.e. prior to the independence of Eritrea), six had a least one civil war after 1960. Except for Egypt and Kenya who had periods of presidential rule between 1960 and 1999, all of Sudan's neighbors had non-inclusive, non-free political regimes.

Appendix 2: Does the CH Model explain war in Bosnia and no-war in Macedonia?[140]

CH variable	*Association with war onset in CH model*	*Values for Variable Bosnia 1990-92*	*Values for Variable Macedonia 1990-92*	*Are Variable Values Consistent with War in Bosnia (B) and No-War in Macedonia (M)?*
Primary Commodity Exports/GDP	Positive or inverted-U	No natural resources of note	No natural resources of note	B: Inconsistent M: Consistent
GDP per capita	Negative	Yugoslavia's GDP high relative to other civil war countries. Constituent Republic GDP not available for 1991-92.	Yugoslavia's GDP high relative to other civil war countries. Constituent Republic GDP not available for 1991-92.	B: Inconsistent M: Consistent
Diaspora	Positive	All three groups (Croats, Serbs, Bosniacs) received diaspora support (see Kalyvas and Sambanis 2003)	A primary source of funding for opposition and armed groups	B: Consistent M: Inconsistent
GDP growth	Negative	Large decline in Yugoslav rate of growth (15-20% points) from 1988-1992.	Initial decline partially offset by later modest gains due to stability in country	B: Consistent M: Consistent
Mountainous terrain	Positive	Very mountainous, with a score of 4.11 (sample mean is 2.17 and maximum 4.55)	Mountainous, but closer to sample mean at 2.24	B: Consistent M: Consistent
Geographic dispersion	Positive	Croats, Serbs, and Bosniacs largely dispersed, with several small areas of concentrated majorities strewn across the state	Albanian minority concentrated in North-Western part of Macedonia at Kosovo border, but region is small percentage of total territory.	B: Consistent M: Consistent
Social fractionalization	Negative	Interacting ethnic and religious fractionalization indices would give Bosnia a very high index	Interacting ethnic and religious fractionalization indices would give Macedonia a high index (higher than the sample mean)	B: Inconsistent M: Consistent

[140] The values for different variables are taken from the CH dataset and from Kalyvas and Sambanis 2003 and Lund 2003. The evaluations on the CH model's fit to each case are from the two case studies. Data on ethnic and religious fractionalization and mountainous terrain are from Collier and Hoeffler (2000) and Fearon and Laitin (2003). Unemployment data are from Woodward (1995, 53). For rough data on geographic dispersion, see Woodward (1995, 217 and 226-27).

Population size	Positive	Slightly lower than the mean (9.04) at 8.11.	Lower than the mean at 7.56	B: Inconsistent M: Inconsistent
Ethnic fractionalization	Negative, but non-significant	High fractionalization at .697 (sample mean is .385, with .925 most fractionalized)	High fractionalization, but lower than Bosnia at .509.	B: Consistent M: Consistent (But not a CH significant factor)
Religious fractionalization	Non-significant	Very high .709 out of a sample maximum of .78 (sample mean is .367)	Higher than the sample mean at .46.	B: Consistent M: Consistent (But not a CH significant factor)
Ethnic dominance	Positive	Low: Bosniacs (Muslims) are the largest group with 43.7% of the population	High – Macedonians are the largest group with 64.6% of the population	B: Inconsistent M: Inconsistent
Income inequality	Non-significant	Fairly high – large rural-urban divide, corresponding to perceptions that Muslims better off than Serbs	Fairly high – political patronage was a source of grievance across ethnic lines	B: Inconsistent M: Inconsistent
Democracy	Non-significant	Non-democratic regime (polity score = 0)	Coded as a democracy (polity=6) – a significant factor in de-escalating conflict	B: Consistent M: Consistent (But not a CH significant factor)
Peace duration	Negative	Considering all Yugoslav wars as related, the Croatian was increased the risk of war in Bosnia	Considering all Yugoslav wars as related, the Croatian and Bosnian wars should have increased the risk of war in Macedonia	B: Consistent M: Inconsistent

Non-CH variables of possible interest				
Leadership	N/A	Milosevic and Karadjic reignited old nationalist conflicts in an attempt to build a greater Serbia	Gligorov a moderating force; Albanian leadership not representing a majority interest in violent conflict	B: Consistent M: Consistent
Polarization[141]	N/A	High: Ratio of largest group (Muslims) to second largest (Serbs) = 1.39 (out of 100; 1 is most polarized)	High, but less than Bosnia: Ratio of largest group (Macedonians to second largest (Albanians) = 3.07	B: Consistent M: Consistent (with lower war risk than Bosnia)
International shocks	N/A	Large international economic shocks; debt crisis	Large international economic shocks; exacerbated by Greek embargo.	B: Consistent M: Inconsistent
Regional effects	N/A	Strong diffusion and contagion effects from the Croatian war	Some diffusion effects from the Bosnian war, but not dominant	B: Consistent M: Consistent
History of violent conflict and minority grievances	N/A	History of nationalist protest, suppressed but not resolved during Tito regime	Ethnic grievances clearly and loudly articulated	B: Consistent M: Inconsistent
Unemployment	N/A	Unemployment rate around the national average at around 22%, but increasing from 1980s	Unemployment rate around the national average at around 24%, but decreasing from 1980s	B: Consistent M: Inconsistent (but consistent with lower risk than Bosnia)
Regime Transition & Instability	N/A	Yes: failed democratization due to ethnic competition	Yes, but stable government since independence	B: Consistent M: Consistent
Weapons and equipment	N/A	Easy access to arms through the Jugoslav National Army	Easy access to small arms	B: Consistent M: Inconsistent
External Intervention	N/A	Impartial peacekeeping by the UN; humanitarian assistance	Preventive deployment by UN; economic assistance	B: Inconsistent M: Consistent

[141] Some authors (e.g. Elbadawi and Sambanis 2000; Reynal-Querol 2002) argue that polarization – not fractionalization—is a significant determinant of civil war. Data are from Kalyvas and Sambanis (2003).