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Shiping Tang, Yihan Xiong, and Hui Li

ABSTRACT

This article contributes both empirically and methodologically. Empirically, we seek to advance our understanding of an important puzzle: does oil cause ethnic war? Methodologically, we seek to identify more precisely the different weaknesses and strengths of the quantitative approach and case studies with process-tracing by explicitly comparing results from these two approaches on the same empirical question. We thus subject the statistical association between the ethnogeographical location of oil and the onset of ethnic war to test with process-tracing. Examining several pathway cases, we find that oil has rarely been a deep cause of ethnic war. Instead, the ethnogeographical location of oil either reignites dormant conflict that has deeper roots in ethnic resentment and hatred or intensifies ongoing conflict, mostly by facilitating the operation of two interconnected mechanisms. Our study echoes the notion that quantitative exercises alone often cannot establish specific causal mechanisms or how contextual factors impact the operation of these mechanisms, and it is precisely on these two key fronts that qualitative exercises possess critical advantages. Hence, quantitative methods and qualitative methods are complementary rather than competitive. Our study also yields important policy implications for preventing and managing ethnic conflict in countries with rich mineral resource.

Introduction

This article aims to be both an empirical and methodological contribution to the booming literature on ethnic (civil) war. Empirically, we seek to advance our

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understanding of a critical puzzle within the literature: does oil cause ethnic war?¹ Methodologically, we attempt to identify more precisely the weaknesses and strengths of the quantitative approach versus case studies with process-tracing by explicitly comparing results from these two approaches on the same empirical question.

Several recent quantitative studies²—including our own³—have identified a robust and significant association between some geographical aspects of oil with the onset of civil war (both ethnic and non-ethnic). Our theory argues that the ethnogeographical location of oil—rather than oil income, rent, production, or concentration—is connected with the onset of ethnic war. When oil is located within the core territory of a subordinate minority group, the minority group is more likely to rebel against a central state, and oil is strongly associated with the onset of ethnic war within a country, *ceteris paribus*. In contrast, when oil is located within the core territory of a dominant majority group, or the country has a fairly even distribution of ethnic groups and hence no group can claim the oil to be its own, oil is not associated with a higher risk of ethnic war. Our quantitative evidence supports a robust and significant positive association between the ethnogeographical location of oil and the onset of ethnic war.

Yet association or correlation is not causation. We subject the association between the ethnogeographical location of oil and the onset of ethnic war and several related theories mentioned above to a more demanding test via comparative case studies with process-tracing. Examining several “pathway cases,”⁴ we find that oil has never been a deep cause of ethnic war. Instead, the discovery of oil within the core territory of a subordinate minority group either reignites dormant conflicts that have deeper roots in ethnic resentment and hatred (underpinned by long period of ethnic domination and earlier episodes of ethnic conflict) or intensifies ongoing conflicts, mostly by facilitating the operation of two interconnected mechanisms (to be discussed later in this article). Consequently, if ethnic resentment and hatred between the majority group(s) and the minority group(s) existed before the discovery of oil, ethnic war then becomes highly probable, if not inevitable.

¹By ethnic war, we mean an organized violent conflict between two ethnic groups, both of which have fielded an army or militia, with total war casualties having reached the threshold of one thousand deaths. For earlier conceptual clarifications, see Donald Horowitz, *The Deadly Ethnic Riot* (Berkeley: University of California Press, 2001), 17–28; Paul Collier and Nicholas Sambanis, eds., *Understanding Civil Wars: Evidence and Analysis*, vol. 2—*Europe, Central Asia, and Other Regions* (Washington, DC: World Bank, 2001), 261–62.

²Jason Sorens, “Mineral Production, Territory, and Ethnic Rebellion,” *Journal of Peace Research* 48, no. 5 (September 2011): 571–85; Philipp Hunziker and Lars-Erik Cederman, “No Extraction without Representation: Petroleum Production and Ethnonationalist Conflict,” (paper prepared for the American Political Science Association Annual Meeting, New Orleans, Louisiana, August 30–September 2, 2012); Massimo Morelli and Dominic Rohner, “Resource Concentration and Civil Wars,” *Journal of Development Economics* 117, no. 1 (January 2015): 32–47; Victor Asal et al., “Political Exclusion, Oil, and Ethnic Armed Conflict,” *Journal of Conflict Resolution* 60, no. 8 (Aug. 2016): 1343–67.

³Although these papers have uncovered an empirical pattern that is similar to our findings, they suffer from several key shortcomings such as logic inconsistency, improper measurement, and inadequate theorizing. We present a more detailed critique of them in our quantitative paper, Li Hui and Shiping Tang, “Location, Location, and Location: The Ethno-geography of Oil and the Onset of Ethnic War,” *Chinese Political Science Review* (2017), DOI: 10.1007/s41111-017-0062-2

⁴John Gerring, *Case Study Research: Principles and Practices* (Cambridge: Cambridge University Press, 2007).

Ever since Gary King, Robert O. Keohane, and Sidney Verba's *Designing Social Inquiry*,⁵ the debate between those favoring the quantitative method and those favoring the qualitative method has raged on.⁶ On the one hand, proponents of case studies with process-tracing have identified key weaknesses of the quantitative approach and insist upon the indispensability of case studies.⁷ On the other hand, some more quantitatively minded scholars continue to insist that the qualitative method should be subsumed under the quantitative method, and they dismiss "causal process observations (CPOs)" as "oxymoron" or "(fine) old wine."⁸ The debate has become so acerbic that Gary Goertz and James Mahoney have identified these approaches as "two cultures" that are somehow destined to co-exist uneasily.⁹

A more welcome development emerging from this debate has been calls for combining or mixing the two approaches¹⁰—and some fine studies do combine them, including several studies on civil war.¹¹ Yet if we are to answer the call to combine or mix these two methods, we should at least have some sense of the different strengths and weaknesses they offer: combining or mixing them is different from comparing them. Few scholars have explicitly demonstrated the relative strengths and weaknesses by comparing results from each on the same empirical question.

Our study fills this lacuna. Because we have performed our own quantitative exercises with regard to the connections between oil and the onset of ethnic war, and our quantitative results corroborate our theoretical hypotheses,¹² we cannot be accused of being biased against quantitative methods. Instead, our exercises strengthen the call for combining different methods to generate more reliable results in empirical inquiries.

⁵Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry* (Princeton: Princeton University Press, 1994).

⁶For critical engagements, see Henry E. Brady and David Collier, eds., *Rethinking Social Inquiry*, 2nd ed., (Lanham, MD: Rowman & Littlefield, 2010); James Mahoney, "After KKV: The New Methodology of Qualitative Research," *World Politics* 62, no. 1 (January 2010): 120–47.

⁷Alexander George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge, MA: MIT Press, 2005); Andrew Bennett and Colin E. Elman, "Qualitative Research: Recent Developments in Case Study Methods," *Annual Review of Political Science* 9, no.1 (June 2006): 455–76; Tulia G. Falleti and Julia F. Lynch, "Context and Causal Mechanisms in Political Analysis," *Comparative Political Studies* 42, no. 9 (September 2009): 1143–66.

⁸Nathaniel Beck, "Causal Process 'Observation': Oxymoron or (Fine) Old Wine," *Political Analysis* 18, no. 4 (Winter 2010): 499–505. For a rebuttal, see Brady and Collier, *Rethinking Social Inquiry*.

⁹Gary Goertz and James Mahoney, *A Tale of Two Cultures: Qualitative and Quantitative Research in the Social Sciences* (Princeton: Princeton University Press, 2012).

¹⁰Brady and Collier, *Rethinking Social Inquiry*; Nicholas Sambanis, "Using Case Studies to Expand Economic Models of Civil War," *Perspectives on Politics* 2, no. 2 (June 2004): 259–79; Evan Lieberman, "Nested Analysis as a Mixed-Method Strategy for Comparative Research," *American Political Science Review* 99, no. 3 (August 2005): 435–52; Gerring, *Case Study Research*; Benjamin Smith, "Exploring the Resource-Civil War Nexus," in *What We Know about Civil Wars*, ed. T. David Mason and Sara McLaughlin Mitchell (Lanham, MD: Rowman & Littlefield, 2016), 215–30; Nicholas Weller and Jeb Barnes, "Pathway Analysis and the Search for Causal Mechanisms," *Sociological Methods & Research*, on-line first article, DOI: 10.1177/10049124114544420; Macartan Humphreys and Alan Jacobs, "Mixing Methods: A Bayesian Approach," *American Political Science Review* 109, no. 4 (November 2015): 653–73. One should note that these papers still allocate more weight to quantitative methods, with the exception of Sambanis (see "Using Case Studies to Expand Economic Models of Civil War"). We support combining (or "mixing") different methods.

¹¹Stathis N. Kalyvas, *The Logic of Violence in Civil War* (Cambridge: Cambridge University Press, 2006); Jeremy M. Weinstein, *Inside Rebellion* (Cambridge: Cambridge University Press, 2007); Michael L. Ross, "How Do Natural Resources Influence Civil War? Evidence from 13 Cases," *International Organization* 58, no. 1 (Winter 2004): 35–67; Michael L. Ross, *The Oil Curse* (Princeton: Princeton University Press, 2012).

¹²Li and Tang, "Location, Location, and Location."

By explicitly comparing our results from both quantitative exercises and comparative case studies with process-tracing on the same empirical question, our studies allow us to locate the strengths and weaknesses of these two approaches more concretely. In the end, our results echo the notion that quantitative exercises alone often cannot establish specific causal mechanisms or how contextual factors impact the operation of these mechanisms, and it is precisely on these two key fronts that qualitative exercises possess critical advantages.¹³ Meanwhile, qualitative approaches are often hard-pressed to handle more than three to four factors and generalize specific correlations beyond a dozen cases; it is here that quantitative exercises prove to be superior. Our comparison also reveals that case studies with process-tracing can identify measurement and coding errors that cannot be easily detected in quantitative studies. Quantitative methods and qualitative methods are thus complementary rather than competitive, especially when the empirical puzzle at hand is accessible to both approaches.

But several caveats are in order. First, we are primarily interested in comparing the strengths and weaknesses of the quantitative approach versus case studies with empirical results. Because we cannot possibly address the extensive discussion on these two approaches here, we shall refrain from engaging the numerous contested points and insights that have emerged from the quali- versus quanti- debate. Rather, we shall let the empirical results speak for themselves, although we do explicitly draw critical methodological implications.

Second, although we examine the vast literature on civil war,¹⁴ we only address ethnic war here. We strongly concur with the notion that ethnic war has unique properties that differentiate it from non-ethnic civil conflict.¹⁵ As such, it is improper to lump together ethnic and non-ethnic war into “civil war,” as if they are no different.¹⁶ Indeed, our evidence strongly points to some key factors that distinguish them from each other.

Third, although we also draw from the vast literature on the role of natural resources in (ethnic and non-ethnic) civil war,¹⁷ we address only the relationship between oil and ethnic war here. We concur with Michael L. Ross that both the terms “natural resources” and “primary commodities” are too broad and blunt to be useful for understanding ethnic or non-ethnic civil conflict.¹⁸ We further agree with Ross and Mary Kaldor et al. that oil is a unique kind of natural resource.¹⁹ By confounding both the explanatory variables and the outcomes—and hence casting

¹³See the references cited in fn. 7 above.

¹⁴Christopher Blattman and Edward Miguel, “Civil War,” *Journal of Economic Literature* 48, no. 1 (March 2010): 3–57.

¹⁵Joseph Rothschild, *Ethnopolitics: A Conceptual Framework* (New York: Columbia University Press, 1981); Donald Horowitz, *Ethnic Groups in Conflict* (Berkeley: University of California Press, 1985).

¹⁶Paul Collier and Anke Hoeffler, “On the Economic Causes of Civil War,” *Oxford Economic Papers* 50, no. 4 (October 1998): 563–73; Paul Collier and Anke Hoeffler, “Greed and Grievance in Civil War,” *Oxford Economic Papers* 56, no. 4 (October 2004): 563–95.

¹⁷Blattman and Miguel, “Civil War”; Michael L. Ross, “A Closer Look at Oil, Diamonds, and Civil War,” *Annual Review of Political Science* 9, no. 1 (June 2006): 265–300; Benjamin Smith, “Exploring the Resource-Civil War Nexus”; Frederick Van der Pleog, “Natural Resources: Curses or Blessing?” *Journal of Economic Literature* 49, no. 2 (June 2011): 366–420.

¹⁸Ross, “Evidence from 13 cases”; Michael L. Ross, “What Do We Know About Natural Resources and Civil War?” *Journal of Peace Research* 41, no. 3 (May 2004): 337–56.

¹⁹Ross, *The Oil Curse*; Mary Kaldor, Terry Lynn Karl and Yahia Said, “Introduction,” in *Oil Wars*, ed. Mary Kaldor, Terry Lynn Karl and Yahia Said (London: Pluto Press, 2007), 1–40.

too wide a net—earlier studies on natural resources and civil war might have clouded, rather than clarified, our understanding.

Fourth, we do not address the duration of ethnic war because it is now generally accepted that onset and duration may have quite different dynamics—although these two phases are at least somewhat connected and do have some common contributing factors.²⁰

The article is structured as follows. After a very brief critique of the existing quantitative and qualitative literature on oil/gas and ethnic war, our theory is outlined and the empirical hypotheses for process-tracing are laid out. Then four cases with process-tracing are examined to further substantiate the theory and explicitly contrast the results of our qualitative exercises with those from quantitative exercises by ourselves and others. A discussion of methodological implications follows, after which the implications for studying and managing ethnic conflicts are addressed and our final conclusions are drawn.

The Ethnogeography of Oil and Ethnic War: A New Theory

Existing literature on oil and ethnic war has been dominated by quantitative methods, ever since Paul Collier and Anke Hoeffler's "On the Economics Causes of Civil War."²¹ We have critically examined existing quantitative studies regarding oil and the onset of ethnic war in our quantitative paper in more detail,²² so we shall not address those issues here. Suffice to say that earlier studies suffer from several key shortcomings, including lack of rigorous theorizing, poor data quality, and inappropriate measurements or indicators of oil that may be endogenous to civil war (such as oil production, rent, and value), as Macartan Humphreys, Ross, and Christa N. Brunnschweiler and Ervin H. Bulte have all pointed out.²³ Most importantly, these earlier studies almost invariably use aggregate data at the national level, even though ethnic war is almost always a subnational phenomenon.²⁴

After the introduction of geographic information system (GIS)-based coding to the study of ethnic conflict by Halvard Buhaug and Scott Gates²⁵—and especially with the availability of GIS-based datasets of oil²⁶ and ethnic groups²⁷—more

²⁰Shiping Tang, "The Onset of Ethnic War: A General Theory," *Sociological Theory* 33, no. 3 (September 2015): 256–79.

²¹Collier and Hoeffler, "Economic Causes."

²²Li and Tang, "Location, Location, and Location."

²³Macartan Humphreys, "Natural Resources, Conflict, and Conflict Resolution: Uncovering the Mechanisms," *Journal of Conflict Resolution* 49, no. 4 (August 2005): 508–37; Ross, "A Closer Look"; Christa N. Brunnschweiler and Ervin H. Bulte, "Natural Resources and Violent Conflict: Resource Abundance, Dependence, and the Onset of Civil Wars," *Oxford Economic Papers* 81, no. 4 (October 2009): 651–74.

²⁴Philippe Le Billon, "The Political Ecology of War: Natural Resources and Armed Conflicts," *Political Geography* 20, no. 5 (June 2001): 561–84; Halvard Buhaug and Scott Gates, "The Geography of Civil War," *Journal of Peace Studies* 53, no. 4 (July 2002): 544–69.

²⁵Buhaug and Gates, "Geography of Civil War."

²⁶Päivi Lujala, Jan Ketil Rød, and Najda Thieme, "Fighting over Oil: Introducing a New Dataset," *Conflict Management and Peace Science* 24, no. 3 (July 2007): 239–56.

²⁷Nils B. Weidmann, Jan Ketil Rød and Lars-Erik Cederman, "Representing Ethnic Groups in Space: A New Dataset," *Journal of Peace Research* 47, no. 4 (July 2010): 491–99; Julian Wucherpfennig et al., "Political Relevant Ethnic Groups across Space and Time: Introducing the Geo-EPR Dataset," *Conflict Management and Peace Science* 28, no. 5 (November 2011): 423–37.

recent studies of oil and ethnic conflict now routinely go to the subnational level,²⁸ correcting this key shortcoming in the earlier literature. Yet these recent studies still suffer from ill-advised use of factors such as production or value, narrower focus on giant oil fields, and logic inconsistency between theory, indicator, and sample.

None of the quantitative studies explores whether association is causation, because none conducts comparative case studies with process-tracing to show how oil causes ethnic war (with the possible exception of Ross).²⁹ Although several quantitative studies have claimed to test different mechanisms, their work is primarily informed by quantitative logic rather than the logic of process-tracing as understood by more qualitative scholars.³⁰ Indeed, most of what they consider to be mechanisms are really statistical hypotheses. Without case studies with process-tracing, it is difficult to determine whether the proposed mechanisms really operate and how they operate in the real world. Consequently, these studies cannot provide fine-grained insights into either the exact mechanisms through which oil drives the onset of ethnic war or how different contextual factors impact the operation of mechanisms to drive the onset of ethnic war.

Qualitative studies of oil and ethnic war do exist. Excellent contributions in three edited volumes provide remarkable coverage of some of the most salient civil wars in which oil or other natural resources play a role.³¹ Indeed, several studies examine the conflicts we consider (such as Aceh, Sudan, and Chechnya), and some even touch upon elements within our theory. Our discussion draws from and critically builds upon these. But most either do not have much of a theory (for example, they are primarily historical accounts), or they do not test factors and mechanisms contained within an integrated theory explicitly with process-tracing methods. Equally important, almost none of these studies are comparative.

Ross and Edward Aspinall are two exceptions.³² Yet Ross examined thirteen cases in one article and treated each too briefly to reveal how the different mechanisms operate in the real world.³³ Meanwhile, although Aspinall nicely contrasted Aceh against Riau and East Kalimantan (all within Indonesia), his focus on three cases within a single country limits the external validity of his study.³⁴

²⁸Sorens, "Mineral Production"; Hunziker and Cederman, "No Extraction"; Morelli and Rohner, "Resource Concentration."

²⁹Ross, *The Oil Curse*, 164–78.

³⁰Falletti and Lynch, "Context and Causal Mechanisms"; David Collier, "Understanding Process Tracing," *PS: Political Science and Politics* 44, no. 4 (October 2011): 823–30; James Mahoney, "The Logic of Process Tracing Tests in the Social Sciences," *Sociological Methods and Research* 41, no. 4 (November 2012): 566–90.

³¹Collier and Sambanis, *Understanding Civil Wars*; Le Billon, "Geopolitical Economy"; Kaldor, "Oil and Conflict."

³²Ross, "Evidence from 13 Cases"; Edward Aspinall, "The Construction of Grievance: Natural Resources and Identity in a Separatist Conflict," *Journal of Conflict Resolution* 51, no. 6 (December 2007): 950–72.

³³Ross' case selection has been criticized by both Weller and Barnes and Humphreys and Jacobs. Le Billon mentioned even more possible cases without examining any of them in detail. See Weller and Barnes, "Pathway Analysis"; Humphreys and Jacobs, "Mixing Methods"; Le Billon, "Political Ecology of War."

³⁴Aspinall, "Construction of Grievance."

Critically building upon elements and insights from the existing literature on natural resources and civil conflict,³⁵ as well as the literature on the nexus of ethnic domination/subordination and resentment/hatred,³⁶ we advance a more interactive and integrated theory regarding oil and the onset of ethnic war. Our theory argues that it is the ethnogeographical location of oil that truly connects the two. When oil is located within the core territory of a subordinate but concentrated minority group, this minority group is more likely to rebel against the central state dominated by another group, *ceteris paribus*. Oil with such an ethnogeographical location is thus more likely to trigger an ethnic war or intensify an ongoing ethnic conflict into a war. As a result, countries with oil located within such core territories are more likely to experience ethnic war. In contrast, when oil is located within the core territory of a dominant majority group, or if a country has a fairly even distribution of ethnic groups and no group can make an exclusive claim about it, oil is not associated with a higher risk of ethnic war.

Our theory proposes two major mechanisms linking the ethnogeography of oil with the onset of ethnic war. The first is that when oil is discovered within the core territory of a (subordinate) minority group, the central state (dominated by another group or other groups) almost inevitably tries to control and even monopolize the oil for economic and political reasons. From the economic perspective, every state desires to control resources and revenues. From the political perspective, the central state seeks to preempt the subordinate group from controlling the oil revenue out of fear that it may seek greater autonomy and outright secession. This fear is most severe if there had been earlier episodes of ethnic tension—or worse, earlier ethnic war—between them. These two factors almost inevitably lead the central government to tighten its grip on the minority's core territory and its oil, via (para-) military deployment and forced or induced migration of the majority group to the core territory of the minority group (usually both).³⁷ The result is an intensification of “internal colonialization” of the core territory by the majority group.³⁸

The second major mechanism is that the presence of significant amounts of oil within the core territory of a subordinated minority group and subsequent exploitative moves by the central government serve as a powerful rallying point for ethnic mobilization—including rebellion—by the minority. This mechanism is underpinned by several sub-mechanisms.

³⁵Le Billon, “Political Ecology of War”; Ross, “Evidence from 13 Cases.”

³⁶Rothschild, *Ethnopolitics*; Horowitz, *Ethnic Groups in Conflict*; Rogers Brubaker, *Nationalism Reframed* (Cambridge: Cambridge University Press, 1996); Petersen, *Understanding Ethnic Violence*; Philip Roeder, *Where Nation-States Come From: Institutional Change in the Age of Nationalism* (Princeton: Princeton University Press, 2007); Lars-Erik Cederman, Kristian Skrede Gleditsch, and Halvard Buhaug, *Inequality, Grievances, and Civil War* (Cambridge: Cambridge University Press, 2013); Wimmer, *Waves of War*.

³⁷Michael L. Ross, “Resources and Rebellion in Aceh, Indonesia,” in *Understanding Civil Wars: Evidence and Analysis*, vol. 2—Europe, Central Asia, and Other Regions, ed. Paul Collier and Nicholas Sambanis (Washington, DC: World Bank, 2005), 35–58; Aspinall, “Construction of Grievance.”

³⁸We borrow the phrase “internal colonialization” from Michael Hechter, *Internal Colonialism: The Celtic Fringe in British National Development* (Berkeley: University of California Press, 1975).

First, even without earlier episodes of ethnic tension and conflict, the minority group resents the fact that the central state—dominated by another group—takes away what it believes belongs to them. Put crudely, the minority group will hold oil discovered within its core territory to be its own. As such, the minority group perceives the extraction of oil by the central government as stealing and plundering.

Second, due to the technology and capital-intensive nature of oil production, the extraction of oil almost inevitably brings an influx of immigrant workers even without encouragement from the central government. These usually come in the form of ethnic aliens (from the majority group or other countries) with more technological and linguistic skills as well as political and business connections.³⁹ This intensified internal colonialization of the core territory induces resentment. The influx of immigrant workers as ethnic aliens and the fact that immigrants usually take the highest paying jobs only adds to the resentment in the form of relative deprivation, driven by the fact (or perception) that the income gap between the minority group and the majority group widens. All of these dynamics increase the danger of “sons of the soil” conflict—that is, the minority group will believe that their land is being occupied or taken away from them by the alien majority group, and they have to rise up and expel the invaders, with force if necessary.⁴⁰

Third, oil extraction and processing usually entail severe environmental degradation, and oil companies, whether multinational or state-controlled, rarely compensate the local people sufficiently or do enough to protect the environment. For the minority group, the discovery and subsequent production of oil within its core territory often has little positive but much (often devastatingly) negative spill-over effect.⁴¹ The result is more resentment within the population of the minority group.

Together, these sub-mechanisms point to greater resentment by the native minority group against the central government controlled by an alien majority group once oil production within their core territory begins or is about to begin. As our cases demonstrate, this resentment serves as a powerful rallying point for the elites within the subordinated minority group to mobilize for ethnic rebellion, not the least because they can bank on the expected oil revenue to broadcast the bright prospect of regional autonomy or outright secession.

Oil located within the core territory of a subordinate minority group therefore impacts both the (subordinate) minority group and the state. The two sides taken together result in a powerful mixture of immediate drivers of ethnic war, as identified in our general theory of ethnic war.⁴² More specifically, oil located in the core territory of a subordinate minority group impacts fear of secession (by the majority), resentment (by the minority), interest or greed (both sides), and potential capability

³⁹Ross, “Resources and Rebellion”; Aspinall, “Construction of Grievance.”

⁴⁰Myron Weiner, *Sons of the Soil* (Princeton: Princeton University Press, 1978); James D. Fearon and David D. Laitin, “Sons of the Soil, Migrants, and Civil War,” *World Development* 39, no. 2 (February 2011): 199–211.

⁴¹Kristen E. Schulze, “The Conflict in Aceh: Struggle for Oil?” in *Oil Wars*, ed. Mary Kaldor, Terry Lynn Karl and Yahia Said, (London: Pluto Press, 2007), 183–224.

⁴²Tang, “Onset of Ethnic War.”

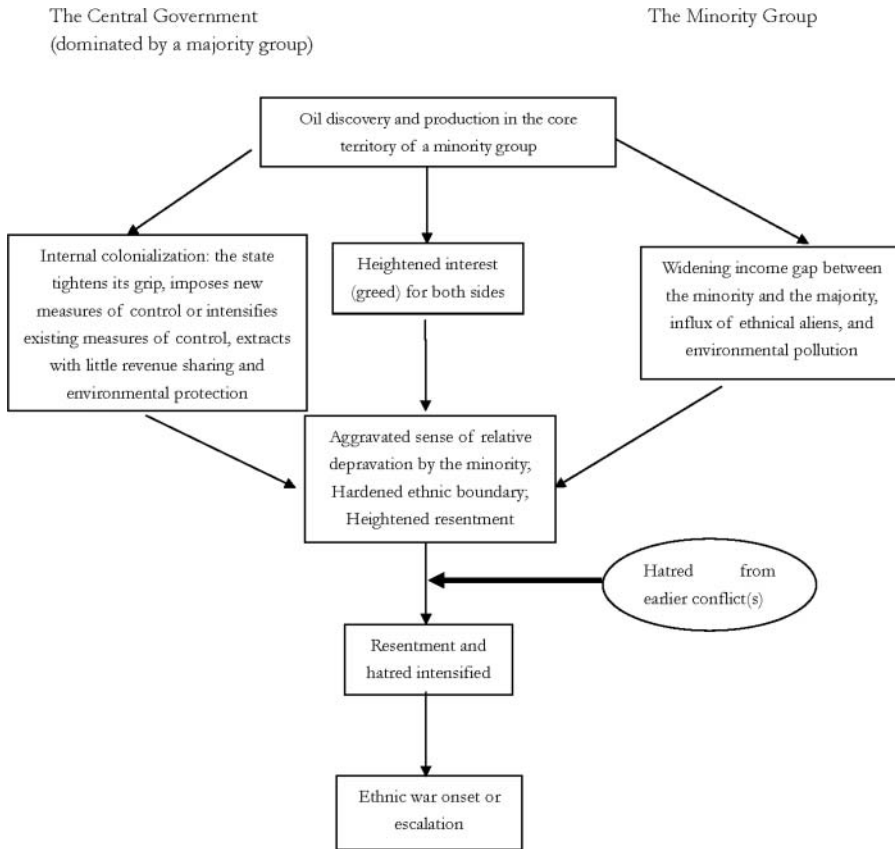


Figure 1. The ethnogeographical location of oil and ethnic war: drivers and mechanisms.

(for the minority, especially). If hatred between the groups already exists, oil located within the core territory of a subordinate minority group impacts five of the seven immediate drivers of ethnic war which, in turn, will drive the two sides into a spiral of escalating tension and mutual distrust, eventually resulting in conflict. Consequently, our theory predicts that oil located within the core territory of a subordinate minority group should be one of the most potent predictors of ethnic war.

These dynamics can be summarized in Figure 1.

From our new theory, two key predictions for quantitative exercises can be derived:

- 1) When oil is located within the core territory of a subordinate but concentrated minority, this minority group is more likely to rebel against the central state dominated by another group, *ceteris paribus*.
- 2) Countries with oil located within the core territory of a subordinate but concentrated minority are more likely to experience ethnic war(s).

More systematic supporting evidence for the two quantitative hypotheses is reported in a separate paper, but the strong positive association between the ethnogeographical location of oil and the onset of ethnic war can be straightforwardly visualized in Figures 2 and 3. At the country level (Figure 2), of the 50

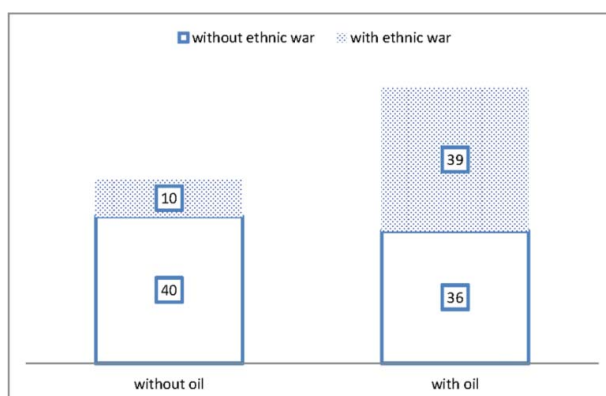


Figure 2. The ethnogeographical location of oil and the onset of ethnic war: association at the country level.

countries with no oil, no oil located within the core territories of at least one of its minority groups, or ethnic groups evenly distributed, only 10 of them had experienced ethnic war and 40 of them had not (left bar), a ratio of 0.25. In contrast, in countries with oil located within the core territories of at least one of its minority groups, the risk of experiencing an ethnic war is much higher. Of the 75 countries in this category (right bar), 39 had experienced ethnic war and only 36 had not, a ratio of 1.08. At the group level (Figure 3), of the 271 groups without oil located within their core territories, only 41 of them had experienced ethnic war whereas 230 had not, a ratio of 0.18 (left bar). In contrast, of the 220 groups with oil located within their core territories, 61 of them had experienced ethnic war and 159 of them had not, a ratio of 0.38 (right bar). The differences between these ratios are statistically significant at a level of $p < 0.01$.

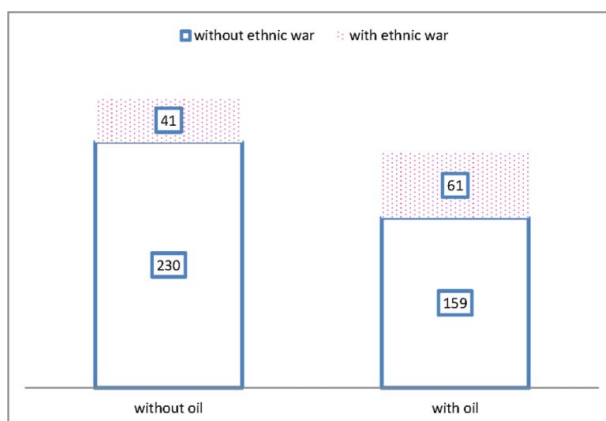


Figure 3. The ethnogeographical location of oil and the onset of ethnic war: association at the group level.

For qualitative case studies, we derive an overarching hypothesis that links oil located within the core territory of a subordinate but concentrated minority with ethnic war via the four interconnected (sub-)mechanisms identified above.

When oil is discovered in the core territory of a (subordinate) minority group:

1) the central state dominated by another group will try to control the oil, bring alien immigrants to extract the oil reserve with little revenue-sharing with the local minority group, and thus widen the income between the minority group and the majority group; 2) oil production tends to bring in an influx of ethnic aliens and produce environmental degradation with little compensation for the local minority group; 3) all these dynamics lead to more resentment by the minority group against the central state controlled by a majority group; and 4) elites of the minority group will mobilize for resistance and rebellion by claiming that resources are theirs, charging that the central state is plundering their resources, and arguing that only with genuine autonomy and independence can the minority group control their own fate. Together, these dynamics tend to trigger a new onset of ethnic war, reignite a dormant ethnic conflict into another ethnic war, or intensify an already ongoing ethnic war.

Case Studies with Process-tracing

This theory is tested by comparative case studies with process tracing, which demonstrate that the mechanisms articulated in the theory really did drive ethnic wars, whereas ethnic peace usually results when these mechanisms lay dormant. Equally important is the examination of a question lurking beneath the vast quantitative literature on oil (and natural resources, more broadly) and the onset of ethnic war but rarely explicitly addressed: is oil a fundamental cause of ethnic war or merely an auxiliary one? For both tasks, only case studies with process-tracing can do the job; no amount of statistics can. We focus on two true positive cases and two negative cases often falsely identified as positive in quantitative exercises. We also briefly mention a genuinely negative case.

Despite John Gerring's majestic effort,⁴³ no generally accepted menu for selecting cases exists. Indeed, we believe that no such generally accepted menu is possible: cases should be selected for different theoretical and empirical purposes, although researchers should be explicit about their principles for their selections. For the purposes of differentiating different theories and visualizing the operation of mechanisms singled out in our theory, we have chosen our cases according to seven principles. Three of the seven principles (2, 3, 7) are drawn from Goertz and Mahoney, Gerring, and Weller and Barnes.⁴⁴ Four are specifically designed for our purposes here (1, 4, 5, 6).

⁴³Gerring, *Case Study Research*; see also Weller and Barnes, "Pathway Analysis."

⁴⁴Goertz and Mahoney, *Tale of Two Cultures*; Gerring, *Case Study Research*.

The seven principles are as follows: (1) Cases must have been well documented, so that their basics are not subject to disputes allowing potential accusations of cherry-picking within-case facts. The exception here is the true negative case of Gabon as a “dog that did not bark.” This case has not received much scholarly attention. (2) Cases must include both positive and negative cases with real possibility of positive outcomes (for example, conflict) according to one’s own or others’ competing theories. (3) Cases must include pathway cases (or typical cases) that exemplify the variations of the key explanatory variable(s), thus allowing clear differentiation of competing theories regarding them. (4) Cases must include pathway cases that exemplify the variations within the operation of the core mechanisms, thus allowing clear differentiation of competing theories regarding core mechanisms. (5) To compare the strengths and weaknesses of quantitative and qualitative methods, cases should include those that can be easily miscoded or misidentified in quantitative exercises, even with GIS datasets. (6) Cases should come from different geographical and cultural backgrounds. (7) Together, the cases examined should provide a fairly generable picture about factors and mechanisms across the population or universe of cases.⁴⁵

With the five cases examined below, Aceh versus Indonesia and South Sudan versus (North) Sudan are pathway cases on the positive side, whereas Gabon is on the negative side. They come from three continents or regions—Africa, Eurasia, and Southeast Asia—and fall into three different religious contexts: Islam (Aceh versus the Indonesian state), Islam versus Christianity (South Sudan versus North Sudan; Armenians versus Azerbaijan), and mixture of local religions (Gabon). We also mention—but do not examine—other cases in the summary table (Table 1)⁴⁶

The case of Aceh versus the Indonesian state and the case of South Sudan versus North Sudan are positive pathway cases. The case of Gabon is the true negative case. The two negative cases that have been falsely identified as positive cases in quantitative exercises are the two Chechnya–Russia wars and the Nagorno–Karabakh conflict between the Armenians and the Azerbaijan state. The cases of Aceh versus Indonesia and Nagorno–Karabakh also allow us to question Massimo Morelli and Dominic Rohner’s hypothesis that emphasizes relative concentration of oil as the key for linking oil with the onset of (ethnic) civil war.⁴⁷ Finally, the case of Aceh versus the Indonesian state and the case of South Sudan versus North Sudan strengthen the argument against theories that emphasize oil production and value as the key for linking oil with the onset of (ethnic) civil war at the group level.

A caveat is in order here. Because we are primarily interested in understanding how oil impacts the onset of ethnic war, we do not focus on the exact political and military courses of these conflicts. Readers interested in more detailed accounts are better served by going to some of the key references cited below.

⁴⁵For a similar point, see Weller and Barnes, “Pathway Analysis.”

⁴⁶We can easily add more cases but believe these cases are already sufficient for our purposes here.

⁴⁷Morelli and Rohner, “Resource Concentration.”

Table 1. Summary of cases.

Cases/items	Did the central government attempt to control the oil located in minority region?	Did the local minority group resent the central government's moves?	Did elites of the ethnic minority group use oil as a rally cry during mobilization?	Did oil trigger the renewal of an ethnic war or intensify an ongoing one?	Overall, was oil a deep cause of the ethnic war?
Aceh vs. Indonesia	Yes	Yes	Yes	Yes	No
South Sudan- (North) Sudan	Yes	Yes	Yes	Yes	No
Other similar positive cases, sometime with different resources	Cabinda vs. Angola (oil), Katanga in Zaire (copper, gold), Irian Java (West Papua) vs. Indonesia (copper, gold, nickel, and now oil/gas), Bougainville in Papua New Guinea (copper), West Sahara vs. Morocco (phosphate), the Nigeria Delta (oil, esp. Bifran vs. the Nigeria state), the Kurds vs. Iraq (oil), and the Nuer and the Dinkas in the new South Sudan (oil).				
The Two Chechnya–Russia Wars	Yes, but only after the war broke out.	Yes, but not for oil	No	No	No
The Nagorno Karabakh Conflict	N.A.	Yes, but not for oil	N.A.	N.A.	N.A.
Gabon	N.A.	N.A.	N.A.	N.A.	N.A.

Note. N.A.: not applicable.

Aceh vs. the Indonesian State

Aceh, located at the northernmost tip of the Island of Sumatra of Indonesia, had a population of about two million in 1965 and four million in 2005, with approximately 90% of the population being Acehnese.⁴⁸ The incorporation of Aceh into the Indonesian state was troubling from the very beginning. The Dutch ceded Aceh to Indonesia in 1949, even though the Dutch had not had complete control over Aceh and did not consult the Acehnese. Worse, the new Indonesian state deployed its armed forces to annex the territory. As a result, a majority of Acehnese considered the Javanese-dominated Indonesian state as a neocolonialist.⁴⁹

The first Aceh insurgency under the banner of *Darul Islam* rebellion in 1953 had nothing to do with oil: natural gas was not discovered in Aceh until 1971. Indeed, it was not even secessionist—its goal was to establish an Islamic state over the whole of Indonesia. Yet even though the rebellion was not secessionist, it did contain serious ethnic sentiments. While Acehnese religious leaders joined the rebellion perhaps more out of distaste for the secularization under Indonesia's President Sukarno than grievance against the decision to incorporate Aceh into North Sumatra, most of the regular Acehnese joined the rebellion for the latter.⁵⁰ In April 1957, when Jakarta promised to reinstate Aceh as a province and grant it special status, support for the rebellion rapidly collapsed. The two sides signed a peace deal in 1959 that granted Aceh the status of "special territory," with considerable autonomy in political, economic, and religious affairs.

Mobile of Indonesia (MOI) began to explore for oil and gas in Aceh in 1968 and discovered the giant Arun gas field in 1971.⁵¹ Production, operated by a joint enterprise between MOI and Indonesia's national oil company (Pertamina) began in 1977. At that time, the Arun gas field in Aceh was one of the largest in the world, accounting for "30% of Indonesia's total gas and oil export." Not surprisingly, Indonesia deemed Aceh and its gas to be vital assets and took various draconian measures to control it,⁵² exactly as predicted by our theory. Some of the most notorious measures taken by the Indonesia state included brutalization, terrorization, and even forceful cleansing ("re-allocation") of the Acehnese people from the area around the gas field, as well as encouraging immigration of Javanese into Aceh.⁵³

The second Acehnese rebellion, launched in 1976 by Hasan Muhammad di Tiro (1925–2010) under the banner of Aceh Freedom Movement (GAM) or Aceh Sumatra National Liberation Front (ASNLF), did have something to do with

⁴⁸Schulze, "Conflict in Aceh."

⁴⁹Aspinall, "Construction of Grievance."

⁵⁰M. C. Ricklefs, *A History of Modern Indonesia since c.1200*, 3rd ed. (New York: Palgrave Macmillan, 2001), 300–309.

⁵¹See Schulze, "Conflict in Aceh," 199 for a map with the location of Aceh, the core territory of GAM, as well as the locations of the Arun gas field and the Arun LNG plant.

⁵²Matthews N. Davies, *Indonesia's War over Aceh* (London: Routledge, 2006), 13–17.

⁵³Geoffrey Robinson, "Rawan is as Rawan Does: The Origins of Disorder in New Order Aceh," *Indonesia* 66 (October 1998): 127–156; Ross, "Resources and Rebellion," 35–58; Davies, *Indonesia's War*; Aspinall, "Construction of Grievance"; Schulze, "Conflict in Aceh."

natural gas in Aceh.⁵⁴ Indeed, di Tiro's decision to rebel was perhaps directly triggered by his failure to win a contract to build a pipeline for the gas field in 1974: he lost the bid to Bechtel.⁵⁵ But gas was only one of the factors—and certainly not the most critical—that contributed to the conflict.

The goal of the second Acehese rebellion was independence for Aceh. It became secessionist for two key reasons. First, after President Suharto took power in a bloody coup in 1965, the Indonesian state under Suharto's "New Order" all but eliminated Aceh's special status by 1968. Second, di Tiro desired to return Aceh to its glorious day as a powerful country controlling much of the Sumatra Island. Di Tiro explicitly identified Javanese Indonesia as neocolonialists in ASNLF's declaration of independence in 1976.⁵⁶ Fundamentally, di Tiro saw the Javanese-dominated Indonesian state as a sham and believed that Aceh had been illegally transferred to Indonesia by the Dutch.

The discovery and production of gas in Aceh provided di Tiro and his associates with a focal point to mobilize the Acehese population. From 1976 on, he explicitly and repeatedly identified gas in Aceh as a key source of grievance, especially in his book, *The Unfinished Diary*.⁵⁷ Yet di Tiro and his followers considered the gas issue more through the prism of Aceh's struggle against Javanese neocolonialism, rather than as an economic issue (motivated by greed) alone.

Di Tiro first claimed that "We, Acehese, who by all the laws in the world, are the legal owners of this land [and the gas beneath it]."⁵⁸ Yet the gas boom since 1976 brought nothing but misery to the Acehese, including dislocation, exploitation, oppression, and relative deprivation, as well as an influx of ethnical aliens, spiritual corruption (such as gambling, alcohol, and—the worst of them all—prostitution), and environmental degradation.⁵⁹ Indeed, despite the gas boom, gas production and export employed only a tiny fraction of the province's native Acehese labor force, leaving them with vast unemployment and hence poverty.⁶⁰ In short, the gas boom was the symbol of all the evils brought by Javanese neocolonialism.

Unsurprisingly, di Tiro justified GAM's attack against Mobil's production facility as a means to counter the exploitation of Aceh by the Indonesia state (and its Mobil proxy) and all the evils entailed by this exploitation. In di Tiro's own words, "They [the Indonesian state] in fact, have made us pay for the cost of our own oppression and colonization by Javanese Indonesia. Without the money they are making from the illegal sale of our oil and gas, the Javanese will never be able to finance their

⁵⁴Hasan di Tiro was the grandson of Tenugien Chik di Tiro, a hero in Aceh's struggle against the Dutch. Hasan di Tiro had also been part of the first Aceh insurgency: he designated himself as the "ambassador" of Darul Islam to the United Nations (UN), after resigning from his post in Indonesia's Mission to the UN.

⁵⁵Robinson, "Rawan is as Rawan Does," 137.

⁵⁶Hasan Muhammed di Tiro, *The Price of Freedom: The Unfinished Diary* (Norsborg, Sweden: Information Department, National Liberation Front Aceh Sumatra, 1984), 17; Schulze, "Conflict in Aceh," 195–96.

⁵⁷Di Tiro, *Price of Freedom*.

⁵⁸*Ibid.*, 104.

⁵⁹Ricklefs, *Modern Indonesia*; Schulze, "Conflict in Aceh," 188–94.

⁶⁰Ross, "Resources and Rebellion"; Schulze, "Conflict in Aceh."

colonial war against us. Up to now we have done nothing about it.”⁶¹ In his diary entry on 15 August 1977, di Tiro proudly noted that “GAM took action to prevent them [i.e., the joint enterprise between MOI and Indonesia’s national oil company Pertamina] from further stealing our oil and gas.”⁶² Then, in his entry on 16 October 1977, di Tiro announced that “in a GAM cabinet meeting, a decision was made to ‘safeguard Aceh’s natural resources that are being increasingly plundered by the Javanese and their foreign cohorts, especially our oil and gas.’”⁶³ Four days after the cabinet meeting, GAM issued a warning to all foreign personnel of MOI and Bechtel and demanded that they leave; afterwards actual attacks on facilities and personnel related to gas production and processing began and became quite frequent.⁶⁴

Thus, although “natural gas is crucial to understanding the dynamics of the violence,”⁶⁵ gas was merely the immediate trigger or one of the proximate causes of the second Acehese conflict. As Kristen E. Schulze noted: “[The] key here is that the benefits of the LNG boom accrued above all to the central government, foreign companies, and non-Acehnese Indonesians, and that so little of locally generated revenues were spent locally. This provided a fertile breeding ground for rebellion. For GAM and many Acehese, the LNG industry epitomized everything that was wrong with Jakarta – overcentralisation, crony capitalism, corruption, and ultimately repression to safeguard those élite interests.... GAM equated the extraction of natural gas with neocolonial exploitation by Jakarta and thus saw it as legitimate to target oil companies as agents of neocolonialism.”⁶⁶ Without the deep ethnic resentment already in place, the mobilization and hatred left behind by the first Aceh insurgency, and Libya’s support, the second insurgency would have been far more difficult.⁶⁷

In the Aceh case, the core mechanism as identified by our theory operated forcefully. Even before the discovery of gas in Aceh, the Indonesian state had begun to internally colonialize Aceh (euphemistically called “centralization”). After the discovery of gas in Aceh, the centralization drive accelerated and tightened oppressively, brewing more resentment among the local Acehese. By the time gas was discovered, all the pieces for another violent conflict had already fallen into place: gas merely provided the immediate trigger.

Indonesia’s troubled history with Irian Jaya (West Papua) had a strikingly tragic similarity to Indonesia’s troubled history with Aceh. Both cases had a significant amount of natural resource (copper, gold, nickel, and now oil) located within the

⁶¹Di Tiro, *Price of Freedom*, 105.

⁶²*Ibid.*, 87.

⁶³*Ibid.*, 104.

⁶⁴*Ibid.*, 107–109, 125–126.

⁶⁵Schulze, “Conflict in Aceh: Struggle for Oil?” 184.

⁶⁶*Ibid.*, 184. According to one estimate, the population of northern Aceh increased from 490,000 to 755,000 between 1974 and 1987, with about 50,000 people coming from other parts of Indonesia and the rest from foreign countries. See Ross, “Resources and Rebellion,” 42.

⁶⁷Tim Kell, *The Roots of Acehese Rebellion 1989–1992* (Ithaca, NY: Cornell Modern Indonesia Project, 1995); Robinson, “Rawan is as Rawan Does”; Aspinall, “Construction of Grievance.”

⁶⁸Gold, copper, and nickel were discovered in West Papua before oil.

core territory of a subordinate minority group.⁶⁸ The only difference so far may be that the tragedy of West Papua still has no clear end in sight, whereas a fragile peace has reigned in Aceh since the peace deal between GAM and the Indonesian state in 2005.

Finally, while strongly supporting our theory that emphasizes the ethnogeographical location of oil, the case of Aceh casts doubt on Morelli and Rohner's hypothesis that singles out oil concentration as the key for linking oil with the onset of ethnic war.⁶⁹ According to their own measurement, the relative concentration score of oil for Aceh is 0.027, a very small value. Yet ethnic wars broke out there repeatedly.

Sudan: South vs. North

The former united Sudan gained independence from British–Egyptian rule in 1953, but its birth was heavily tainted by ethnic tension.⁷⁰ Most critically, southern Sudan representatives were excluded from the process of negotiating independence, and as a result, the newly independent state was dominated by the North from the very beginning. To make matters worse, the northern-dominated Sudanese state pursued internal colonialization of the South via Arabization and Islamiization immediately after independence.

In early 1955, Sudan's central government decided to relocate the southern troops (the Equatorial Corps, exclusively staffed by the two equatorial provinces in southern Sudan) from the south to the north. The Equatorial Corps stationed in Torit mutinied on August 18, 1955, and they were followed by other Equatorial Corps stationed at Juba, Yei, and Maridi. The mutiny was accompanied by widespread violence against northerners in the region, from looting and beating to massacring.⁷¹ In its effort to suppress the insurgency, the Sudanese government promised amnesty to mutinied troops who surrendered peacefully. But the government reneged on its promise and eventually executed three hundred of them.⁷² When the conflict was finally suppressed, some of those who refused to surrender—and escaped—later became the backbone of Anya-Nya I and then the Sudan People's Liberation Army/Movement (SPLA/M).⁷³ The Torit Mutiny thus marked the beginning of first South–North conflict. Not until 1969–1972, when both sides were exhausted by the ongoing war, did the Sudanese government

⁶⁸Gold, copper, and nickel were discovered in West Papua before oil.

⁶⁹Morelli and Rohner, "Resource Concentration."

⁷⁰Douglas H. Johnson, *The Root Causes of Sudan's Civil Wars* (Bloomington: Indiana University Press, 2003), 21–37; Scoppas S. Poggo, *The First Sudanese Civil War* (New York: Palgrave Macmillan, 2009), 9–47.

⁷¹Edgar O'Ballance, *Sudan, Civil War, and Terrorism 1956–1999* (New York: St. Martin's Press, 2000), 7–9.

⁷²Poggo, *Sudanese Civil War*, 34–35.

⁷³The Armed Conflict Dataset (ACD) dated the onset of the first Sudan Civil War to 1963, eight years after the Torit Mutiny. Only Fearon and Laitin dated the onset of the first Sudan Civil War to 1956. See Nils Petter Gleditsch, et al., "Armed Conflict 1946–2001: A New Dataset," *Journal of Peace Research* 39, no. 5 (October 2002), 615–637; Fearon and Laitin, "Ethnicity, Insurgency, and Civil War," *American Political Science Review* 97, no. 1 (February 2003), 75–90. In the Mahdi language, "anyanya" means snake venom, a highly feared poison. The term Anya-Nya I is to differentiate it from Anya-Nya II in the second South versus North conflict.

(under Gaafar Nimeiry, who became president through a coup in 1969) and the SPLA/M (under Joseph Lagu) pursue a peace deal, which was signed on March 12, 1972 in Addis Ababa.

The first Sudan civil war had nothing to do with oil, because oil was not discovered in southern Sudan until 1979. The war was in response to the power structure of the Sudanese state (seeking autonomy for the South) and the role of Islam in the country's political life.

Yet the first South–North conflict laid much of the foundation for the second war (1983–2005). In both the South and the North, many politicians opposed the 1972 peace deal. Many northern politicians believed that the North granted far too many concessions to the South, whereas many in the South wanted nothing short of independence or felt that the South had been cheated.⁷⁴ Most critically, some territories that had traditionally been part of the South but were assumed by the North after independence were supposed to be returned to the South, a promise that was never fulfilled. When oil was discovered in the south in 1979, this would become an impossibility. Together with the Jonglei Canal project, which was to have transferred water from the South to the North (and Egypt), many southerners concluded that “Khartoum proves itself to be more concerned with the extraction of the South's resources with the minimum return for the region itself, an attitude more in keeping with the old Sudanic states' exploitation of their hinterlands than with modern nation-building.”⁷⁵

With the discovery of oil in Upper Nile and Jonglei provinces by Chevron and Total in 1979, things began to unravel rapidly. Like a replay of the independence process, the North-dominated Sudanese state “decided to exclude the south from any decision in petroleum affairs.”⁷⁶ Worse, the very first act of Sudan's central government in 1980 was to redraw the boundary and shift the oil fields in the South to the North.⁷⁷ In 1981, a dispute on the location of an oil refinery also intensified: the North wanted it to be located within its jurisdiction, whereas the South demanded otherwise. Notably, the moves taken by Sudan's central government regarding the oil located in the South reflect exactly the logic of “internal colonialization.”⁷⁸

On October 12, 1982, Sudan's President Numayri further alienated the South by signing the Charter of Integration between Sudan and Egypt, which most southerners strongly resented because it would mean further Arabization of Sudan and hence further domination of the South by the North. Finally, in 1983, in addition to taking control of southern oil and building the refinery in the North, Numayri ordered southern Sudanese troops to be transferred to the North (a replay of the lead-up to the 1955 Torit Mutiny), pushing the South–North confrontation beyond the point of no return.

⁷⁴Johnson, *Root Causes*, 55–57.

⁷⁵*Ibid.*, 44–49, 48 (quotation).

⁷⁶*Ibid.*, 45–47, 46 (quotation).

⁷⁷*Ibid.*, 196, appendix.

⁷⁸Michael Hechter, *Internal Colonialism* (Berkeley: University of California Press, 1970).

During the second Sudanese civil war, the control of oil resources was a critical battleground between the SPLA/M and the Sudanese state. "Oil has raised the stakes of the war and given both sides an increased commitment to the battlefield."⁷⁹ SPLA/M's manifesto in July 1983 listed "the attempts to redraw the South Regions' borders and the decision to first build an oil refinery outside of Bentiu and then to pipe the Bentiu oil directly to Port Sudan [all within the north]" as two of the eleven grievances that justified SPLA/M's struggle against Khartoum.⁸⁰ Shortly after its formation, SPLA/M attacked both the oil installations and the Jonglei Canal to halt oil production by Chevron and Total.⁸¹ In December 1985, SPLA/M occupied Yirol, forcing Chevron to suspend its operation in Bentiu, achieving the goal of stopping the North's exploitation of oil in the South.⁸²

Again, the deep ethnic grievance rather than oil had been the more critical and deeper cause of the South–North conflict in Sudan. Although oil-looting became a major source of income for the SPLA/M and the location of the refinery and oil-revenue sharing were two key sticky points of the conflict, oil was not at the root of ethnic war between South and North. John Garang, the leader of SPLA/M, articulated the deeper causes of the Sudanese civil wars well in 1985: "The central problems in the Sudanese war are the dominance of One Nationality; the Sectarian and Religious Bigotry that dominated the Sudanese political science since independence; and the unequal development in the country.... Unless the Nationality Question is solved correctly, the Religious Bigotry is destroyed and a balanced development for all the regions of the Sudan is struck, war is the only invited option in the South."⁸³ Oil was thus merely a direct trigger and an accelerator, by pouring fuel on the already simmering conflict.

The Two Chechnya–Russia Wars: Little to Do with Oil within Chechnya

Two of the bloodiest conflicts in the aftermath of the collapse of the Soviet Union have been the two Chechnya–Russia wars. Because Chechnya held a significant amount of oil reserve and possessed an oil industrial complex before the first Chechnya war, some pundits have readily classified the conflicts as "resource wars."⁸⁴

Oil was discovered in Chechnya in the Middle Ages, if not earlier. Commercial production, however, did not begin until 1890, after the Russian empire had

⁷⁹International Crisis Group (ICG), *God, Oil, and Country: Changing the Logic of War in Sudan*, Africa Report No. 39, 10 January 2002 (Brussels: International Crisis Group, 2002), 100.

⁸⁰Johnson, *Root Causes*, 64.

⁸¹*Ibid.*, 44–49.

⁸²*Ibid.*, 199.

⁸³*Ibid.*, 71; Gadir Ali et al., "Sudan's Civil War: Why Has It Prevailed for So Long?," in *Understanding Civil Wars: Evidence and Analysis*, vol. 1, Africa, eds. Paul Collier and Nicholas Sambanis (Washington, DC: World Bank), 193–220.

⁸⁴Le Billon, "Political Ecology of War." For critiques and citations, see Kaldor, "Oil and Conflict," and Said, "Greed and Grievance in Chechnya." In *Oil Wars*, eds. Mary Kaldor, Terry Lynn Karl and Yahia Said (London: Pluto Press), 130–56. On the two Chechnya wars, we draw heavily from John B. Dunlop, *Russia Confronts Chechnya: Roots of a Separatist Conflict* (Cambridge: Cambridge University Press, 1998); Anatol Lieven, *Chechnya: Tombstone of Russian Power* (New Haven: Yale University Press, 1998); Said, "Greed and Grievance;" and Christoph Zürcher, *The Post-Soviet Wars* (New York: New York University Press, 2007).

“pacified” Chechnya with two brutal wars (1785–94 and 1817–64), which together lasted more than a half century. By the 1970s, oil production in Chechnya peaked at 21.5 million tons (about 7% of the total oil production of the Soviet Union), but it had dwindled to 6 million tons by the 1980s, just before the outbreak of the first Chechnya war.⁸⁵

Unsurprisingly, in numerous quantitative exercises without subnational GIS data, the two Chechnya conflicts have been consistently identified as positive cases indicating a strong link between oil and ethnic (civil) wars.⁸⁶ Even in our own quantitative exercises using subnational GIS data, the two Chechnya wars would have been mistakenly identified as positive cases. The core territory of the Chechens (Chechnya) has a significant amount of oil, and the two wars certainly were ethnicity-based. Yet oil within Chechnya was never a deep cause—or even an important trigger—of the conflicts, although it has been an important factor in sustaining them.⁸⁷

In November 1990, Dzhokhar Dudayev, a Chechen who was a decorated general in the Red Army’s air force, was elected head of the All-National Congress of the Chechen People. From early on, Dudayev adopted a radical nationalistic position, perhaps sensing the impending implosion of the Soviet Union. When the coup against Gorbachev took place in August of 1991 and Chechnya moderates in Grozny were unable or unwilling to take a stand against it, Dudayev seized the opportunity and declared Chechnya’s sovereignty and secession from the Soviet Union. In October 1991, Dudayev was elected president of the Chechen Republic by an overwhelming majority.

The first post-USSR war between Chechnya and Russia did not erupt until 1994, although tension had been increasing steadily between Moscow and Grozny. The war was not initiated by the Chechnya rebels; most pundits put the blame on the late Russian president Boris Yeltsin. Facing declining popularity, Yeltsin sought to boost his standing and reelection campaign with an easy little war, despite strong protests from some of Yeltsin’s top military advisors.⁸⁸ The outcome, however, was a humiliating defeat for Russia, which eventually withdrew from Chechnya. In May 1997, the two sides signed a truce that postponed the political settlement indefinitely and implicitly recognized Chechnya’s *de facto* independence.

The uneasy truce lasted until 1999. During the truce between 1997 and 1999, politics within Chechnya became ever more radicalized, including increasing links to criminal activities and Jihad movements. When Chechen radicals invaded the nearby Dagestan republic, raided stations of Russian troops, and bombed three apartments in Moscow, Russia under Vladimir Putin responded with an overwhelming force intended to solve the Chechnya problem once and for all.

⁸⁵Said, “Greed and Grievance.”

⁸⁶Collier and Hoeffler, “Greed and Grievance in Civil War”; Fearon and Laitin, “Ethnicity, Insurgency, and Civil War”; James D. Fearon, “Primary Commodity Exports and Civil War,” *Journal of Conflict Resolution* 49, no. 4 (August 2005): 483–507; Brunnschweiler and Bulte, “Natural Resources”; Ross, *The Oil Curse*.

⁸⁷Dunlop, *Russia Confronts Chechnya*; Said, “Greed and Grievance”; Zürcher, *Post-Soviet Wars*.

⁸⁸Dunlop, *Russia Confronts Chechnya*; Lieven, *Chechnya*; Said, “Greed and Grievance.”

One can certainly argue that oil, not just in Chechnya but also in the larger Caucasus region, has been an important consideration for Russia. This calculation thus is consistent with the first major mechanism in our theory. Yet even for the Russians, the oil reserve in Chechnya before the first war was a minor consideration at best. What concerned the Russians most was the break-up of the Russian federation and the Islamization of the whole Transcaucasia region, as well as their fear of losing control of all the oilfields in the Caucasus and the Caspian Sea in the shadow of NATO expansion and talk of the “Great Game” in Washington.⁸⁹

From the Chechen side, however, the dynamics of the two wars are quite different from the two positive cases above. Unlike GAM of Aceh and the SPLA/M of South Sudan, throughout the whole conflict the Chechen rebels rarely, if ever, sought to justify their struggle against Russia and mobilize popular support with oil in Chechnya. Rather, the deeper cause was their resentment and (ancient) hatred of centuries of Russian domination and their desire for independence. The immediate cause of the first war was Yeltsin’s unfounded optimism, and the immediate cause of the second war was the increasing chaos and radicalization of Chechnya under Dudayev, fused with Jihad elements.⁹⁰

The Nagorno–Karabakh Conflict: Nothing to Do with Oil

In 1923, the Soviet Union made Nagorno–Karabakh, primarily populated by Armenians, an autonomous region (*oblast*) within the Azerbaijan Republic rather than part of the Armenia Republic. Between 1923 and 1988, the Armenia Soviet Republic and Armenians in Nagorno–Karabakh did not rigorously challenge this institutional arrangement, although there were Armenian dissents and agitations from time to time.

During the last days of the Soviet Union, however, things began to unravel. On February 20, 1988, the Soviet of Nagorno–Karabakh voted to secede from Azerbaijan and join Armenia. Unsurprisingly, Azerbaijan (then still a Soviet republic) rejected Nagorno–Karabakh’s demand. On February 27, 1988, Azerbaijanis attacked and murdered Armenians in Sumgait (an industrial city just north of Baku). This violent pogrom was readily cast as genocide by Armenian nationalists from all sides. The dying Soviet Union proved to be incapable of restoring peace and order, and with its collapse imminent, nationalists within Armenia, Azerbaijan, and Nagorno–Karabakh all banked on the dispute as a rallying cry for ethnic mobilization as part of nation-building.⁹¹ Ethnic agitation and tension escalated into an ethnic war by 1991.

⁸⁹Sarah O’Hara, “Great Game or Grubby Game? The Struggle for Control of the Caspian,” in *The Geopolitics of Resource Wars*, ed. Philippe Le Billon (New York: Frank Cass, 2005), 138–160.

⁹⁰Dunlop, *Russia Confronts Chechnya*, chap. 4.

⁹¹Erik Melander, “The Nagorno–Karabakh Conflict Revisited: Was the War Inevitable?,” *Journal of Cold War Studies* 3, no. 2 (Spring 2001): 48–75; Stuart J. Kaufman, *Modern Hatred: The Symbolic Politics of Ethnic War* (Ithaca, N Y: Cornell University Press, 2001); Kaldor, “Oil and Conflict”; Zürcher, *Post-Soviet Wars*.

Azerbaijan has plenty of oil and is a petro-state. Thus, the Nagorno–Karabakh conflict too has been identified as a positive case suggesting a link between oil and (ethnic) civil war in most quantitative exercises that do not employ subnational geographical data.⁹² Indeed, without rigorous theorizing, Morreli and Rohner still mistakenly identify it as a positive case that links concentration of oil with the onset of ethnic war, even with subnational geographical data.⁹³

Because we have presented a more detailed critique of Morreli and Rohner in a quantitative paper on oil and the onset of ethnic war, we shall be brief here.⁹⁴ Morreli and Rohner posit that as long as oil within a country is unevenly distributed (or “concentrated”) among groups, oil is an important determinant of ethnic war, regardless of whether oil is concentrated within the core territory of a subordinate minority group or that of a dominant majority group. Morreli and Rohner then set out to capture this uneven distribution with an “Oil Gini” index: the more concentrated oil is within a country, the higher the Oil Gini score.⁹⁵ They hypothesize that the higher the Oil Gini score of a country, the more likely that country will experience secessionist (ethnic) war.

According to Morreli and Rohner, Azerbaijan has a very high Oil Gini score (from 0.394 to 0.633): oil within Azerbaijan is exclusively concentrated within the core territory of the dominant majority group (the Azerbaijanis) along the Caspian Sea in the eastern part of the country, whereas the Nagorno–Karabakh region in the western part of the country has no oil. Because the Nagorno–Karabakh conflict broke out within the newly independent Azerbaijan state, this case would have been counted as a positive case that links concentration of oil with the onset of ethnic war.

Yet, the Nagorno–Karabakh conflict is actually a negative case: oil has nothing to do with the onset of the fighting.⁹⁶ Oil is exclusively located within the territory controlled by the majority group, and the Armenians fought not for oil but for either outright independence or eventual (re-)unification with Armenia. Indeed, the most foundational driver of the Nagorno–Karabakh conflict is not even ancient or modern hatred between Armenians and Azerbaijanis but rather nationalism construction in the dying days of the Soviet Union.

The case of Armenians versus the Azerbaijan state in Nagorno–Karabkh is thus especially instructive not only for demonstrating the power of case studies with process-tracing but also for illustrating the necessity of guiding empirical inquiries, whether quantitative or qualitative, with rigorous theorizing. Because Morreli and Rohner reasoned that as long as oil within a country is unevenly distributed, it is an important determinant of ethnic war, they operationalize their measuring with

⁹²Collier and Hoeffler, “Greed and Grievance in Civil War”; Fearon and Laitin, “Ethnicity, Insurgency, and Civil War.”

⁹³Morelli and Rohner, “Resource Concentration.”

⁹⁴Li and Tang, “Location, Location, and Location.”

⁹⁵Morelli and Rohner, “Resource Concentration.”

⁹⁶Melander, “Nagorno–Karabakh Conflict Revisited”; Kaufman, *Modern Hatred*; Kaldor, “Oil and Conflict.”

the Oil Gini index without connecting it with the minority versus majority differentiation. When quantitative exercises collapse real world facts into mere data points, they may obtain “good (robust)” statistical results that are nonetheless far off from the real world.

Gabon: Ethnic Peace Despite Plenty of Oil

Gabon, with a population of about 1.5–1.7 million (2010 census), is a highly fractionalized society by any measure: its population consists of 28.6% Fang, 10.2% Punu, 8.9% Nzebi, 6.7% French, and 4.1% Mpongwe.⁹⁷ It has not been a very democratic country. Since its independence from the French in 1960, Gabon’s Polity IV scores have been hovering near three. From 1967 until his death in 2009, Omar Bongo Ondimha served as president, with each term as long as seven years. His last three elections had not been fairly conducted by any minimal standard.⁹⁸ After Omar Bongo’s death, his son Ali Bongo Ondimba became the new president in October 2009. The late and present Presidents Bongo and their close associates have been quite corrupt.⁹⁹

Oil was discovered in Gabon in 1929, although production did not begin until 1957, just before the country’s independence.¹⁰⁰ After 1973, oil came to dominate the Gabonese economy. Between 2000 and 2010, “oil accounted for, on average, 50% of GDP, 60% of all government revenue, and 80% of all export receipts [in Gabon].”¹⁰¹ Gabon’s management of its oil wealth has not been that great, to put it mildly.¹⁰² These facts would seem to predict ethnic troubles for Gabon, if it is oil production, rent, revenue, or dependence that connects oil with the onset of ethnic war. Put differently, Gabon should have a very high probability of ethnic war according to earlier theories, and yet ethnic peace has prevailed so far. As such, theories centered on oil production, rent, revenue, export, or dependence are significantly weakened if they fail to pass the Gabon case, which should be a most likely case for them.

Despite high ethno-linguistic diversity, heavy dependence on oil income, and lack of democracy, ethnic peace has reigned in Gabon, one of the most prosperous and stable states in sub-Saharan Africa. Thus, if one focuses on the link between oil rent/income and ethnic war, Gabon would be utterly inexplicable. In light of our new theory, however, the strange case of Gabon is easily explainable.

Most critically, Gabon, despite being a multiethnic country with plenty of oil, has been blessed by three factors. First, most ethnic groups are evenly spread

⁹⁷David E. Gardiner and Douglas A. Yates, *Historical Dictionary of Gabon*, 3rd ed., (Lanham, MD: Scarecrow Press, 2006), 80–84.

⁹⁸*Ibid.*, liii–lxvii; 38–44, 265–82.

⁹⁹*Ibid.*, 260–64.

¹⁰⁰Cheikh Gueye, “Gabon’s Experience of Managing oil Wealth,” in *Oil Wealth in Central Africa: Policies for Inclusive Growth*, ed. Bernardin Akitoby and Sharmini Coorey (Washington, DC: International Monetary Fund, 2012), 197–212.

¹⁰¹*Ibid.*, 197–201.

¹⁰²Gardiner, and Yates, *Historical Dictionary*, 260–264; Gueye, “Gabon’s Experience.”

throughout the country, and inter-ethnic marriage is quite common. As a result, no major ethnic group can claim a region as its core territory and hence claim to own the oil within it. Second, even the largest group, the Fang people, comprises only approximately 28.6% of the total population; this fact might have deterred it from attempting domination of the country. Finally, Gabon's major political leaders have resisted mobilization along ethnic lines. Indeed, for all their defects, the late president Omar Bongo Ondimha and the current president Ali Bongo Ondimba have not played the ethnic card but have consistently sought to stay above the ethnic fault lines.

Summary of the Cases

These case studies strongly support our theory while significantly weakening several competing theories (see [Table 1](#) for a summary). First of all, the two true positive cases (Aceh and South Sudan), which can be understood as smoking-gun tests with positive pathway cases,¹⁰³ show that when oil is discovered in the core territory of a subordinate minority group, it does drive the central government to control, if not monopolize, the oil. Such actions by a central government dominated by one ethnic group, however, results in an intensification of internal colonialization and degradation of the environment of the minority's core territory, which in turn exacerbates the minority group's resentment and hatred of the government. In both cases, the mindset of both the leaders and masses of the subordinate minority groups operated as our theory predicted: they referred to the oil within their core territory as "their" oil, resented the extraction of oil resources by the central government as neocolonial plundering, and demanded autonomy with a greater control of the oil revenue or outright independence.

Putting the two mechanisms together, oil in the core territory of a subordinate minority group tends to heighten the risk of ethnic war within a state. Similar dynamics have operated in cases in which the natural resources are either oil (Cabinda in Angola; the Kurds versus the Iraq state) or other mineral resources (copper in Bougainville versus Papua New Guinea; copper, gold, and nickel in West Papua in Indonesia; phosphate in West Sahara versus Morocco; see [Table 1](#)).¹⁰⁴

The two true positive cases also unambiguously demonstrate that oil has rarely been a fundamental cause of ethnic war, but merely a key auxiliary and immediate trigger. In both cases, the discovery (and production) of oil within the core territory of the subordinate minority group was the immediate provocation of (renewed) ethnic conflict, but the deeper cause was ethnic grievance and hatred beforehand, incurred by long periods of ethnic domination and previous episodes of warfare, consistent with earlier theories of ethnic politics and several recent

¹⁰³Stephen Van Evera, *Guide to Methods for Students of Political Science* (Ithaca, NY: Cornell University Press, 1997); Collier, "Understanding Process Tracing."

¹⁰⁴Le Billon, "Political Ecology of War"; Ross, "Evidence from 13 Cases"; Ross, *The Oil Curse*.

empirical studies.¹⁰⁵ These reservoirs of grievance and hatred were then adroitly exploited in political mobilization by ethnic elites.¹⁰⁶ Contrary to Collier and Hoeffler, ethnic grievance (and hatred) is a deeper cause of ethnic war than greed.¹⁰⁷

How can we confidently conclude that ethnic grievance (and hatred) is a deeper cause of ethnic war than greed for oil and other resources? Perhaps a factual answer to a counterfactual question will drive home the point. The counterfactual question is this: could an ethnic war break out, even without oil? The answer to this counterfactual question is an unequivocally yes. Both the first Aceh rebellion and the first Sudan civil war (1955–72) erupted before the discovery of gas and oil in Aceh and South Sudan respectively. Similarly, the Chechens rebelled against Russian conquest long before the production of oil within Chechnya (1785–94 and 1817–64), and the Nagorno–Karabakh conflict has had nothing to do with oil either.

We then explored two negative cases that have been often falsely identified as positive in quantitative exercises: the two Chechnya–Russia wars and the Nagorno–Karabakh conflict between the Armenians and the Azerbaijan state. The two Chechnya–Russia wars are especially instructive that correlation results from quantitative exercises should be treated with caution. Both wars would have been identified as positive cases linking oil with the onset of ethnic war, even with sub-national GIS data.¹⁰⁸ Yet oil had little, if anything, to do with the onset of these conflicts, at least from the Chechens' point of view.

Meanwhile, both the Aceh and the Nagorno–Karabakh conflicts, together with our quantitative exercise reported elsewhere,¹⁰⁹ strongly contradict Morelli and Rohner's thesis that relative distribution or concentration is the critical link between oil and onset of (ethnic and non-ethnic) civil war.¹¹⁰ By so doing, we show that misguided theorizing almost inevitably leads to erroneous results in quantitative exercises that may be far removed from real world facts. In contrast, these two cases and our quantitative exercise strongly support our argument that the ethnogeographical location of oil is the key for linking it with the onset of ethnic war.

The true negative case (or negative pathway case) of Gabon illustrates that even though a country with enormous ethnolinguistic diversity has plenty of oil and is arguably a petro-state, ethnic peace may reign when no group can easily claim oil to be its property. The case of Gabon thus strongly confirms our theory that it is oil within the core territory of a subordinate minority group that links it with the outbreak of ethnic war, and neither the presence of oil nor ethnolinguistic fractionalization is a contributing factor on its own. Together with our quantitative evidence presented elsewhere,¹¹¹ the case of Gabon also seriously undermines

¹⁰⁵Rothschild, *Ethnopolitics*; Horowitz, *Ethnic Groups in Conflict*; Brubaker, *Nationalism Reframed*; Roeder, *Where Nations Come From*; Cederman, Gleditsch, and Buhaug, *Inequality, Grievances, and Civil War*; Wimmer, *Waves of War*.

¹⁰⁶Kaufman, *Modern Hatred*; Petersen, *Understanding Ethnic Violence*.

¹⁰⁷Collier and Hoeffler, "Greed and Grievance in Civil War."

¹⁰⁸Morelli and Rohner, "Resource Concentration"; Li and Tang, "Location, Location, and Location."

¹⁰⁹Li and Tang, "Location, Location, and Location."

¹¹⁰See also Le Billon, "Political Ecology of War."

¹¹¹Li and Tang, "Location, Location, and Location."

theories that focus upon oil income, rent, or export at the national level without taking the ethnogeographical location of the oil into consideration.¹¹² In fact, our quantitative exercises show that once the ethnogeographical location of oil is controlled for, oil production at the national level becomes insignificant in regressions with the onset of ethnic war as the dependent variable.

Finally, the cases of Aceh and South Sudan also cast serious doubt on arguments that focus on the production (and value) of oil and other mineral resources from a minority region.¹¹³ In both cases, rebels had intentionally and consistently tried to sabotage oil production controlled by multinational oil companies backed by the central state, making oil production inherently endogenous to ongoing ethnic wars. In Aceh, rebellion erupted in 1976, after the discovery (1971) but before the actual production of the gas field (1977). The evidence thus corroborates the conclusions of two earlier quantitative studies that question the validity of using oil production or value as the key indicator for connecting oil with the onset of (ethnic and non-ethnic) civil war at the national level.¹¹⁴

Quali vs. Quanti: Beyond Two Cultures?

Many insights have been gained from the quali- versus quanti- debate, (re)ignited by King, Keohane, and Verba.¹¹⁵ Yet, a critical lacuna within this debate has been that few studies have set out to explicitly demonstrate the different weaknesses and strengths of the two approaches by comparing them on the same empirical question.

In our inquiries into the onset of ethnic war, we explicitly combined quantitative and qualitative methods because the empirical puzzle at hand is accessible to both. Doing so has allowed us to not only arrive at more robust results but also to compare results from each approach on the same empirical question. Because we have performed both quantitative and qualitative exercises, neither camp can accuse us of being biased against one or the other. These empirical exercises combining and comparing the two approaches yield critical implications for both the quali- versus quanti- debate and for deploying the two approaches in empirical inquiries.

Foremost, the empirical puzzle should determine the choice of methods, rather than the other way around; not all are equally accessible to the two approaches. Some empirical puzzles—such as electoral studies and legislature voting—are more accessible to quantitative approaches, partly because investigating the voting behavior of a specific voter and legislator is inherently trivial: his or her voting behavior is of little interest if we want to know how a voting result has been reached. Other puzzles are inherently more accessible, if not exclusively accessible,

¹¹²Collier and Hoeffler, "Economic Causes"; Collier and Hoeffler, "Greed and Grievance in Civil War"; Fearon, and Laitin, "Ethnicity, Insurgency, and Civil War"; Humphreys, "Natural Resources"; Ross, *The Oil Curse*.

¹¹³Sorens, "Mineral Production"; Hunziker and Cederman, "No Extraction."

¹¹⁴Brunnschweiler and Bulte, "Natural Resources"; Sarah McLaughlin Mitchell and Cameron G. Thies, "Resource Curse in Reverse: How Civil Wars Influence Natural Resource Production," *International Interactions* 38, no. 2 (April 2012): 218–242.

¹¹⁵Keohane, King, and Verba, *Designing Social Inquiry*.

to qualitative methods because the universe of cases is inherently few and/or the quantitative data is scant or unreliable. Puzzles in this category include the great revolutions in the modern age,¹¹⁶ the origins of war in human history circa 3500–2000 BC,¹¹⁷ and how different regions came to peace or war after WWII.¹¹⁸ Yet some empirical puzzles, such as the onset of ethnic wars in the post-WWII world, are indeed accessible to both qualitative and quantitative methods. In the post-1945 world, there have been only 110 outbreaks of ethnic war according to the most widely used dataset, and such a universe of cases is still manageable with qualitative methods. For these inquiries, deploying both approaches may yield important payoffs.

Second, our study reinforces the notion that quantitative methods and qualitative methods are complementary rather than competitive. Different methods have their own strengths and weaknesses, and no method is omnipotent. Quantitative exercises alone often cannot establish specific causal mechanisms and how contextual factors impact the operation of those mechanisms. More often than not, correlations are not causes and certainly not deep causes. Indeed, even with the most state-of-the-art datasets, quantitative exercise alone may still produce merely correlations that may be far removed from reality in some cases (such as the two Chechnya wars).

Comparative case studies with process-tracing, guided by rigorous theorizing, can establish specific causal mechanisms as well as how contextual factors impact the operation of these mechanisms. Case studies with process-tracing can thus produce more fine-grained and accurate pictures of true causation.¹¹⁹ Meanwhile, the strength of quantitative methods lies in uncovering wide empirical patterns and establishing associations between factors and outcomes across a large universe of observations, especially when guided by rigorous theorizing. On this front, qualitative methods would be hard pressed to compete against quantitative methods. Thus, whenever possible (that is, with empirical puzzles accessible to both approaches), different methods should be combined to generate more reliable results.

Third, the Nagorno–Karabakh conflict highlights the fact that case studies can uncover measurement and coding errors in quantitative exercises that cannot be easily identified otherwise. Although such errors may not change the overall statistical results, they should at least demand us to pause and rethink the logic of our

¹¹⁶Barrington Moore, *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World* (Boston: Beacon Press, 1993); Theda Skocpol, *States and Social Revolutions: A Comparative Analysis of France, Russia and China* (Cambridge: Cambridge University Press, 1979).

¹¹⁷Shiping Tang, *The Social Evolution of International Politics* (Oxford: Oxford University Press, 2013).

¹¹⁸Benjamin Miller, *States, Nations, and the Great Powers* (Cambridge: Cambridge University Press, 2007); Etel Solingen, "The Genesis, Design and Effects of Regional Institutions: Lessons from East Asia and the Middle East," *International Studies Quarterly* 52, no. 2 (June 2008): 261–94.

¹¹⁹George and Bennett, *Case Study and Theory Development*; Bennett and Elman, "Qualitative Research: Recent Developments in Case Study Methods"; Falletti and Lynch, "Context and Causal Mechanisms in Political Analysis"; Collier, "Understanding Process Tracing"; Bennett, "Process Tracing and Causal Inference"; Mahoney, "The Logic of Process Tracing Tests in the Social Sciences."

measurement and coding schemes more rigorously. At least in the case of Morelli and Rohner, their logically invalid measuring and coding scheme based upon relative concentration of oil has led to fragile statistical results.¹²⁰

Finally, our exercise highlights the necessity of guiding or disciplining empirical inquiries, whether qualitative or quantitative, with more rigorous and sophisticated theorizing. Without rigorous theorizing, both qualitative and quantitative exercises can produce results that are fragile and difficult to interpret.

Theories and empirical hypotheses are fundamentally different. Empirical hypotheses, even if confirmed, merely capture empirical regularities or patterns (such as: earlier episodes of conflict tend to be associated with higher risk of conflict later on). In contrast, theories explain these empirical regularities or patterns.¹²¹ Ideally, theories should underpin empirical hypotheses, and hypotheses should be derived from a theoretical core.

Unfortunately, some earlier quantitative studies on natural resources and civil war have implicitly equated deriving empirical hypotheses with theorizing. Too often, these studies merely list hypothesis after hypothesis without bothering to derive those hypotheses from a theoretical core. As a result, these studies are only marginally theoretical, if not entirely atheoretical,¹²² and although they link a host of factors with the onset of (ethnic and non-ethnic) civil war, most of their results are no more than fragile correlations that cannot be meaningfully and consistently interpreted.¹²³ To better understand a social fact, theorizing is critical, if not indispensable.

Studying and Managing Ethnic Conflicts

We have advanced a more integrated theory regarding the relationship between oil and the onset of ethnic war and provided both quantitative and qualitative evidence to support our theory. Our effort points to some useful lessons for studying and managing ethnic conflict.

First of all, our theory and evidence on the ethnogeography of oil and the onset of ethnic war point to a more general theory regarding mineral resources and the onset of ethnic war. When the core territory of a subordinate minority group holds a significant amount of mineral resources (oil, gas, diamond, and other mineral resources), that group is more likely to rebel, especially if the group has been marginalized or dominated by the central state, *ceteris paribus*. Consequently, a state with significant mineral resources located within the core territories of subordinate minority groups is more likely to experience ethnic conflict, *ceteris paribus*. Indeed, preliminary and case-based evidence strongly points to such a general theory, and we are now in the process of extending our theory with systematic evidence.¹²⁴

¹²⁰Li and Tang, "Location, Location, and Location."

¹²¹Mario Bunge, "Explanation and Mechanisms," *Philosophy of the Social Sciences* 27, no. 4 (December 1997): 410–65.

¹²²Collier and Hoeffler, "Greed and Grievance in Civil War"; Fearon and Laitin, "Ethnicity, Insurgency, and Civil War."

¹²³For earlier critiques along these lines, see Humphreys, "Natural Resources"; Hegre and Sambanis, "Sensitivity Analysis."

¹²⁴Michael L. Ross, "Oil, Drugs and Diamonds: The Varying Role of Natural Resources in Civil War," in *The Political Economy of Armed Conflict*, ed. Karen Ballentine and Jake Sherman (Boulder, CO: Lynne Rienner, 2003), 47–70.

Second, our case studies with process-tracing strongly suggest that oil and other mineral resources have rarely been a deep cause of ethnic war. Rather, grievance and hatred instilled from long periods of subordination and earlier episodes of conflict have been more critical, constituting the deeper causes of ethnic war, consistent with the arguments made by generations of theorists of nationalism. This suggests that students of ethnic war that focus on mineral resources (or economic causes) must not turn their eyes away from the powerful arguments by theorists of nationalism and recent empirical work that draws from them.¹²⁵

Third, our qualitative and quantitative evidence strongly contradicts the notion that ethnic civil war and non-ethnic civil war are essentially similar; rather, they reinforce the counter argument that these two types of conflict are fundamentally different.¹²⁶ Ethnicity does matter. Studying civil war without taking ethnicity into account is unwise; a more productive way forward is to study these two types of civil war separately.

Fourth, our cases have clearly shown that earlier episodes of ethnic war or existing lower level of ethnopolitics impacts subsequent ethnic politics, including ethnic war. Earlier episodes of ethnic war or existing lower level of ethnopolitics have brewed hatred and resentment, thus laying the seeds for further conflict. They have also mobilized the minority population at least to some degree, laying some of the infrastructure for further ethnic mobilizing. Yet, most existing datasets on the onset of ethnic (civil) war do not consider these dynamics and treat each conflict as independent from the others. A better understanding of the onset of ethnic war must be based on a better designed dataset that takes into account the changing levels of ethnopolitics before the actual onset of conflict.¹²⁷

Fifth, our case studies point to the possibility that the roots of ethnic tension, resentment, and hatred can run much deeper. For instance, in the case of Sudan, an even deeper cause is British colonial policies or legacies. This is consistent with recent studies suggesting that British colonial policies toward different regions in British India and chiefdoms in Sierra Leone have cast a long shadow upon developments in these regions.¹²⁸

Sixth, our exercise calls for more comparative case studies in the study of mineral resources and ethnic war. Although many excellent studies of specific ethnic war exist,¹²⁹ few students of mineral resources and ethnic war have

¹²⁵Kaufman, *Modern Hatred*; Smith, "Separatist Conflict in the Former Soviet Union and Beyond: How Different Was Communism?"

¹²⁶Cederman, Gleditsch, and Buhaug, *Inequality, Grievances, and Civil War*; Wimmer, *Waves of War*; Elaine K. Denny and Barbara F. Walter, "Ethnicity and Civil War," *Journal of Peace Research* 51 no. 2 (March 2014): 199–212.

¹²⁷Tang, "Onset of Ethnic War."

¹²⁸Shivaji Mukherjee, "Colonial Origins of Maoist Insurgency in India: Long Term Effects of Indirect Rule," (paper prepared for the American Political Science Association Annual Meeting, August 25, 2013) accessed 28 January 2016, https://papers.ssrn.com/sol3/lpapers.cfm?abstract_id=2299348; Adnan Naseemullah, "Shades of Sovereignty: Explaining Political Order and Disorder in Pakistan's Northwest," *Studies in Comparative International Development* 49, no. 4 (December 2014): 501–22; Daron Acemoglu, Tristan Reed, and James A. Robinson, "Chiefs: Economic Development and Elite Control of Civil Society in Sierra Leone," *Journal of Political Economy* 122, No. 2 (April 2014): 319–68. We thank an anonymous reviewer for pushing us to emphasize this point and alerting us to these studies.

¹²⁹Petersen, *Understanding Ethnic Violence*; Zürcher, *Post-Soviet Wars*.

deployed comparative case studies. Instead, there have been either purely quantitative exercises or individual case studies. Our exercises have shown that comparative case studies provide distinct mileage when it comes to understanding the relationship between mineral resources and ethnic conflict. Students of mineral resources and ethnic war thus should not leave a powerful tool of inquiry behind.

Seventh, our case studies challenge the idea that looting and extortion of oil (and the broader natural resources) may be a major cause of civil war by providing start-up funding for the rebels, an idea introduced by Collier and Hoeffler. Our case studies suggest that looting and extortion has not been a major cause of civil war onset, although it may have been an important factor in prolonging existing conflict.¹³⁰ In Aceh, Sudan, and Chechnya, looting and extortion became part of the rebels' tactics only after the rebellion was underway. The same can be said about Columbia and other similar cases.¹³¹

Our studies also hold some important policy implications for preventing ethnic wars in regions within a country with rich mineral resources. As Ross has incisively noted, different mechanisms linking oil with ethnic war point to different policies.¹³² Now that we have shown, both quantitatively and qualitatively, that countries with oil (and other mineral resources) located in the core territories of subordinate minority groups face a much higher risk of ethnic conflict, especially when ethnic resentment, hatred, and mobilization already exist, several policy implications for preventing and managing ethnic conflict can be drawn straightforwardly.

First, when oil or other mineral resources is discovered within the core territory of a subordinate minority group, the key task of the central state should not be to merely assert greater control over the minority group. Rather, the central state should take measures to reduce ethnic domination and share revenues from those resources with minority group(s). If a central state fails to do so, it may actually exacerbate ethnic resentment and hatred and trap itself in an ethnic conflict. To prevent an ethnic war, reining in greed of the central government may be more critical than reining in greed by a minority group, contrary to Collier and Hoeffler.¹³³

Thus, after the discovery of oil or other mineral resources within the core territory of a minority group, both the central state and the mining companies (whether multinational or domestic) need to get the local ethnic groups involved as stakeholders before the production of oil to avoid trouble, if not disaster, down

¹³⁰Päivi Lujala, "The Spoils of Nature: Armed Civil Conflict and Rebel Access to Natural Resources," *Journal of Peace Research* 47, no. 1 (January 2010): 15–28.

¹³¹Thad Dunning and Leslie Wirspa, "Oil and the Political Economy of Conflict in Colombia and Beyond: A Linkages Approach," in *The Geopolitics of Resource Wars*, ed. Philippe Le Billon (New York: Frank Cass, 2005), 81–108; Ali et al., "Sudan's Civil War"; Ross, "Resources and Rebellion"; Said, "Greed and Grievance."

¹³²Ross, "Evidence from 13 Cases."

¹³³David Keen, "Greed and Grievance in Civil War," *International Affairs* 88, no. 4 (July 2012): 757–77; Collier and Hoeffler, "Greed and Grievance in Civil War."

the road. The key objectives should be to: 1) determine how revenue will be shared between the central state and the local group(s); 2) set a fixed or floated proportion of the oil revenue for environmental protection and cleaning up; and 3) hire as many local minority group members as possible, and if necessary, train them to the level of technical and linguistic skill they need to be competent for the new jobs available.¹³⁴

Second, although we do not address bargaining in conflict resolution directly, our study echoes the recommendation that if mineral resources are concentrated within the core territory of a minority group, then some kind of revenue sharing between a minority group and the central state must be in place for any peace deals between the two sides to be durable and lasting.¹³⁵

Third—and consistent with our and others' finding that ethnic hatred and resentment is a deeper cause of ethnic war—reconciliation after a conflict that addresses the deeper causes of the ethnic conflict is always the key to lasting peace,¹³⁶ even though the pace of reconciliation may depend on special circumstances. In contrast, even with revenue sharing from mineral resources, peace agreements that do not deal with hatred and grievances from previous conflicts tend to be fragile. Hence, Aceh may face the real possibility of renewed conflict because the Indonesia state had done little to redress the grievances and devastation from the earlier wars.¹³⁷ Likewise, after South Sudan's independence from the former united Sudan, conflicts between the Nuer and the Dinka came to the forefront both because no reconciliation had been implemented between the two peoples and the Dinka now want to dominate the new state.

Fourth, although we do not explicitly examine the role of external players such as greedy neighboring countries/dictators (for example, Charles Taylor's avarice for Sierra Leone's diamonds), multinational corporations (MNCs) backed by their governments (such as France's Total-ELF in the pursuit of Angola's oil revenue and China's state-owned oil companies in Sudan and Nigeria), and rogue businessmen (including, the businessmen who co-funded the conquest of Sierra Leone by the Revolutionary United Front with Charles Taylor),¹³⁸ our discussion holds some useful implications for binding at least some of these players.¹³⁹ External players, whether driven by their greed, sunk cost, or anger/rage, have often triggered new conflict or intensified existing conflicts. Thus, a key challenge is how to constrain these actors. On this front, the

¹³⁴Earlier, Humphreys advanced the first and the second recommendations in a different context. See Humphreys, "Natural Resources."

¹³⁵Jake Sherman, "Burma: Lessons from the Cease Fire," in *The Political Economy of Armed Conflict*, ed. Karen Ballentine and Jake Sherman (Boulder, CO: Lynne Rienner, 2003), 225–255.

¹³⁶Shing Tang, "Review: Reconciliation and the Remaking of Anarchy," *World Politics* 63, no. 4 (October 2011): 713–51.

¹³⁷Amnesty International, *Time to Face the Past: Justice for Past Abuses in Indonesia's Aceh Province* (London: Amnesty International, 2013).

¹³⁸Ross, "Evidence from 13 Cases."

¹³⁹Dunning and Wirspa, "Oil and the Political Economy."

five permanent members of the United Nations Security Council (France, UK, US, Russia, and China—the so called “P5” countries), regional great powers, and regional organizations can play a critical role. Although the international community has little leverage over the P5 countries because they can veto any condemnation of their acts, shaping world opinion against support for certain actors may indeed have some influence over their actions. If the P5 countries, regional great powers, and regional organizations can work together, they may be able to rein in MNCs, rouge businessmen, and corrupt leaders to prevent and contain some ethnic wars.

Finally, although we exclusively focus on ethnic war and emphasize the foundational differences between ethnic and non-ethnic conflict in this article, some of the factors and mechanisms we identify may also operate to (re)ignite or intensify non-ethnic conflict under certain circumstances.¹⁴⁰ This outcome is especially likely when significant resources are discovered in a region already troubled by significant non-ethnic insurgent activities. In such a scenario, the insurgent group can mobilize (and entice) more popular support for its cause by claiming that the central government is taking too much from the land of the people (the sons of the soil) and hence the local population should rise up against the government. Similar dynamics may have played important roles in the long civil war between the Revolutionary Armed Forces of Colombia (FARC) and the Colombian state as well as the Maoist groups versus the Indian state,¹⁴¹ although the former case may contain at least some ethnic ingredients. The key lesson is that a state facing such a situation should take the possibility of an intensified conflict seriously and adopt the measures as we have identified to prevent a possible disaster.

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¹⁴⁰We thank a reviewer for pushing us to emphasize this point.

¹⁴¹Dunning and Wirspa, “Oil and the Political Economy”; Mukherjee, “Colonial Origins.”