



Scientific Inquiry and the Causes of Civil War

The Feasibility Thesis and Beyond

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Introduction

War has been a persistent pattern of interaction between and within states and other political units for millennia. In its many varieties, it is probably the most destructive form of human behavior. War kills people, destroys resources, retards economic development, ruins environments, spreads disease, expands governments, militarizes societies, reshapes cultures, disrupts families, and traumatizes people. Preparation for war, whether for conquest or protection, diverts valued resources from more constructive social activities, and it often undermines security rather than enhances it.

- Jack Levi & William Thompson¹

These words astutely summarize the many of the devastating consequences of war. Indeed, most of those who have experienced war first hand will quickly agree; war is hell. However, war has also been one of the driving motors of change across history. War has a profound impact on the shape of our psychological, social, political, and economic trajectories. Hence, we cannot understand the meandering path of history, nor shape our future, without understanding war. Understanding war has been a central focus of social inquiry since the time of Thucydides, who reflected on the war between Athens and Sparta in his still influential work, *History of the Peloponnesian War*.² Classical thinkers on war, from Sun Tzu to Clausewitz, have focused on dissecting the nature of combat in an effort to develop more effective strategies.³ Despite an ever-expanding mastery of military strategy and might, the devastating consequences of war have persisted through the centuries. Thus, in contemporary thought the overwhelming focus is in understanding the forces that *cause* war. If we can understand what causes war, then perhaps we can understand how to anticipate and prevent it. This is an attractive goal given war's ruinous nature.

The traditional approach to studying the causes of war has focused on the interaction between states. After all, since the treaty of Westphalia in 1648 the primary units of war have been independent states. Tilly succinctly described the interwoven nature of statehood and modern warfare when he argued that "war made the state, and the

¹ Levi & Thompson (2010) p. 1

² Thucydides (1996)

³ See Sun Tzu (2007) and Von Clausewitz (1993)

state made war.”⁴ However, at the end of the 20th Century we have seen a dramatic shift in the nature of war. Today civil war is the dominant form of warfare. In the period between 1945 and 1997 there were 23 interstate wars with about 3.3 millions battle deaths. In contrast, in the same period there were 108 civil wars with around 11.4 million deaths.⁵ This post WWII trend reached heightened importance, as a new rash of civil wars broke out in the wake of the collapse of the Soviet Union in the early 1990’s.⁶ Today scholars acknowledge that the traditional ‘Westphalian’ model of analysis is insufficient for studying civil wars; accordingly a new generation of scholarship has emerged.⁷

In attempting to understand the causes behind civil war scholarship from a diverse range of disciplines has engaged in a strong discourse. Indeed, findings from political science, sociology, psychology, anthropology, philosophy, history, theology, economics, and even mathematics and biology have added to our understanding of the causes of civil war. However, it is no surprise that scholars from different academic disciplines, with different focuses and methods, have produced very different findings in their studies of the causes of civil war. In spite of the unified goal of understanding the causes of war, we still do not have a clear picture of what causes civil war. “The only consensus that seems to be emerging is that the question of the causes of war is enormously complex...”⁸ Facing the complexity of civil war is a formidable challenge. Before we even begin there is a central question we must ask ourselves. How should we study the causes of civil war? Thus, parallel to the discourse on the causes of civil war, is a discourse on the best theoretical and methodological approaches to the study of civil war.

In the last decade econometric explanations for the causes of civil war have reached a particularly high level of influence in policy and decision-making.⁹ The most influential studies of the economics of civil war have posited that, considering the extremely costly nature of civil war, monetary or otherwise, individuals are only likely to take part in civil war if there are opportunities for economic gain in doing so. Hence the

⁴ Tilly (1975) p. 42

⁵ Correlates of War Project (2011)

⁶ Levi & Thompson (2010)

⁷ Ibid.

⁸ Ibid, p. 2

⁹ Mac Ginty & Williams (2009), Ward *et al* (2010)

best actions to avoid the onset of civil war are to create alternative economic opportunities. This is most commonly advocated that these opportunities be created through free-market solutions to promote national economic growth.¹⁰ Fearon and Latin's 2003 paper as well as Paul Collier's work since 2000 are the prime examples of this argumentation.¹¹ However, above all others, Collier, Hoeffler, and Rohner's feasibility thesis has emerged as the spearhead of econometric explanations for the causes of civil war.¹² The central argument of the feasibility thesis is that "where as rebellion is financially and militarily feasible it will occur."¹³

This econometric perspective, based in statistical regression models, is a radical departure from the sorts of ethno-religious based explanations typical in sociological and anthropological accounts of conflict. Thus a reinvigorated debate on the causes of civil war, as well as the embedded discourse on the best methods of inquiry, has ensued. The reaction of large parts of the academic community has been dramatic; some have characterized econometric explanations for the causes of civil war as an "intellectual cruise missile."¹⁴ That it was "as if economics was trying to abolish politics, sociology, and anthropology, and to declare: no more listening required!"¹⁵

The most cynical scholars have questioned whether the influence of works like the feasibility thesis has had more to do with their easy to interpret quantitative nature of their findings and, in turn, policy solutions that fit well within the dominant neo-liberal prescription in the worlds key international financial institutions, rather than their actual descriptive or predictive value. Regardless of this cynicism, the econometric explanations for the causes of civil war, especially the feasibility thesis, have found considerable favor with governments and international organizations and so they deserve more serious analytical examination.¹⁶

In the embedded discourse on the best theoretical and methodological approaches to the study of civil war the feasibility thesis and other models of economic rationalization almost unanimously employ the use of large-n quantitative studies based

¹⁰ Mac Ginty and Williams (2009)

¹¹ See: Fearon and Latin (2003), Collier (2000), Collier and Hoeffler (2004)

¹² See Collier *et al* (2009)

¹³ *Ibid.*

¹⁴ Mac Ginty and Williams (2009) p. 31

¹⁵ Keen (2008) p. 29

¹⁶ Mac Ginty and Williams (2009)

in statistical models, particularly regression analysis. This methodological approach, while certainly having a prolific record across the social sciences, can be heavily scrutinized in the study of the causes of civil war. Ward, Greenhill, and Bakke in particular have offered in-depth criticism highlighting the dangers of drawing policy prescriptions from statistical models.¹⁷ Statistical significance levels (p-value) are often misunderstood by policy makers and politicians as measures of model predictability. In reality statistically significant models of the causes of civil war often fail to predict, or in many cases falsely predict, cases of civil war from within their own sample let alone out of sample cases of civil war.

This is a perplexing situation. How has a body of work, spearheaded by the feasibility thesis, which is effective in establishing correlations between variables like GDP *per capita* and incidences of civil war, but not anywhere near effective at predicting incidences of civil based on those correlations, become so influential with policy- and decision-makers? What are the specific contributions that the feasibility thesis offers to our understanding of how to study the causes of civil war?

In this piece we address two main questions. First, How can we best study the causes of civil war? In addressing this question we use the feasibility thesis as a field to explore the twin discourses on the causes of, and best methods for studying, civil war. In turn we, secondly, ask what contributions the feasibility thesis makes to these two inseparable debates. Our goal *is not* fresh insights on the causes of civil war. Rather, we are concerned with *how* to best go about studying the complex phenomena of civil war in light of current practice as well as emerging theory and methods.

Chapter One adopts the idea of an academic narrative to survey the dominant ‘greed versus grievance’ discourse surrounding the causes of civil war and to describe the path that the feasibility thesis takes in negotiating this web of interrelated thought. Tracing the academic narrative of the feasibility thesis will make clear a considerable number of continuity gaps in the feasibility framework. Our conclusion is that in the study of the causes of civil war we must be attentive to the vast complexity of causes in each individual case of civil war. Likewise, in studying the causes of civil war we must be attentive to the vast range of explanation, for all perspectives, even the feasibility

¹⁷ Ward *et al* (2010)

thesis, add insight. We need theoretical frameworks that can take as much insight into account as possible, rather than narrowing our focus to a particular view.

Chapter Two expands the greed and grievance discourse on the causes of civil war in Chapter One to a larger discourse in academia between qualitative and quantitative methodology. Here we offer a review of the ontological, epistemological, and methodological foundations of these very different approaches to scientific inquiry. In this discussion we find the feasibility thesis as emblematic of the larger positivist mode of inquiry and embodied with its particular strengths and weaknesses. The result of this discussion is the conclusion that all approaches to scientific inquiry are valid, but that with explicit attention to ontological, epistemological, and methodological underpinnings we can be more clear in exactly what findings we bring to the table; and furthermore how to combine them. Each perspective is only a piece of the puzzle. If we wish to build a holistic picture of the causes of civil war we must be committed to methodological pluralism.

In Chapter Three we take on some theoretical considerations when thinking about causation. In light of the commitment to methodological pluralism in Chapter Two, Chapter Three contends that it is through studying the dynamic interaction of the contexts in which civil wars occur and the mechanisms that drive them across the dimension of time that we will be most fruitful in making generalizations about what causes civil wars. In the effort to highlight this point we review a number of frameworks on the role of context, mechanisms, and time in causation as stepping-stones for understanding the importance of these three elements in reflecting on the feasibility thesis and the study of the causes of civil war.

Chapter Four brings together Chapter One's focus on the complexity of civil war, Chapter Two's emphasis on methodological pluralism in the study of civil war, and Chapter Three's attention to issues of context; mechanisms; and time in the causes of civil war under the framework of set-theoretic thinking. We argue that fuzzy-set analysis can serve a pivotal role in the study of civil war on three grounds: its attention to the complexity of causes in each cases of civil war, its role as a true bridging tool between qualitative and quantitative approaches to scientific inquiry, and its potential expansion

for specific analysis of issues of context; mechanisms; and time. With this we outline an idealized research strategy for the study of the causes of civil war.

The task we have set before us is enormous, but so is its importance. Understanding how to study the causes of civil war is essential in that it may one day lead us to a clear enough picture of civil war to anticipate, and thus dramatically reduce, its occurrence. We embrace the academic adage that “scientific inquiry is a long and torturous path, with many false starts and blind alleys.”¹⁸ However, we let it not discourage us, as we push the collective “scholarly enterprise of knowledge accumulation steadily forward.”¹⁹

¹⁸ Freedman (2010) p. 352

¹⁹ Skocpol (2003) p. 417

Chapter One

Greed & Grievance in Civil War

The feasibility thesis offers an imposing central maxim; where a rebellion is feasible it will occur.¹ Understanding the academic narrative and logical implications that support such a condensed statement is essential. Greed-based explanations for civil war, that is those explanations that stress the primacy of economic motivations, have found considerable favor with governments and international organizations, consequently becoming extremely influential in policy decisions.² Thus these arguments, of which the feasibility thesis is the spearhead, deserve serious scrutiny.

This chapter proceeds as a step-by-step explanation of the academic narrative that leads some political economists to the feasibility thesis. Following this build up of the feasibility thesis we can offer critique of that narrative at each step. Furthermore, we offer a critique of the feasibility thesis as a whole, reviewing several additional contextual elements with considerable explanatory leverage in understanding civil war that have largely remained outside the greater greed versus grievance discourse. All this shall be tempered with a case example made in Mexico's drug wars.

What emerges is clear; no one perspective holds all the answers to the causes of civil war. It is only through incorporating the diverse range of insights from many perspectives that we can hope to build a holistic picture of the causes of civil war.

The Academic Narrative of Feasibility

A highly analytical work such as the feasibility thesis does not appear from thin air, rather it exists within a larger discourse on the causes of civil war. This discourse has many questions and even more, often opposing, answers. It may be helpful to think of the way academics negotiate this discourse as a story or narrative.³ Let us say we are political economists. We are indoctrinated to view the primacy of individual economic rationale

¹ Collier, Hoeffler, and Rohner (2009)

² Ginty and Williams (2009)

³ I use the word 'narrative' here purely in the metaphorical sense. I intend no allusion to larger anthropologically based conceptions of narratives.

for understanding the world around us. This rationale will guide us through the discourse on the causes of civil war in a very different way than that of another academic tradition would. Thus we develop a story about the discourse, and the world around us, that makes our larger theories logically consistent. Deciphering the academic narrative that leads to the feasibility thesis is essential both in understanding its strengths and weaknesses. Thus to build the narrative of the feasibility thesis we must enter a very particular mode of thought.

Collier and Hoeffler have shaped the academic discourse today by establishing the dyadic division, and academic pennant, of greed versus grievance-based arguments about the causes of civil war.⁴ Essentially greed arguments are those of the political-economist, suggesting that civil war is consistent with creating opportunities for economic gain. In contrast, grievance-based arguments hold to the more traditional view that civil war is about settling grievances, such as those that exists along ethnic or religious fault lines.⁵ Taking a greed-based perspective on violent conflict is not intuitive to many, so the first step in developing the narrative of feasibility is to examine the ways that political economists challenge the more traditional and intuitive grievance-based explanations for civil war.

Challenging Grievance-based Arguments

A spike of civil wars closely followed the collapse of the Soviet Union in the early 1990's. Explaining this new trend of increasing intrastate conflict coupled with a drop in interstate conflict is perplexing. Indeed, the shift was so quick that it must have seemed large forces were at work. Samuel Huntington famously postulated in his influential book *The Clash of Civilizations* that though the age of bipolar ideological

⁴ Collier and Hoeffler (2004) Also, De Soysa (2002) has done well to cleverly refine the dyadic greed versus grievance mantra into greed, creed, and need; incorporating scarcity based arguments.

⁵ Painting a picture of the academic world as dyadic, with those that espouse grievance-based arguments on one side and those that support greed-based arguments, the ultimate conception being the feasibility thesis, on the other is not accurate. There is a world of subtlety and nuance between the two. However, for the purposes of this narrative based approach to describing the discourse, polarizing camps serves as a useful means to highlight the key differences in approaches to explaining the causes of civil war. Likewise the portrayal of political economists as having one approach and interpretation is inaccurate; there are many distinct perspectives. What we present here, though, is the prevailing greed-based policy informing perspective.

conflict that had dominated world politics during the cold war era was coming to a close, the cultural and religious divides that remained would reach salience and come to serve as the new source of conflict.⁶ Huntington's work reached popular notoriety. After all, the logic was intuitive and the evidence seemed in plain sight; on the evening news a host of violent conflicts touted as over religious and ethnic divides ensued throughout the Ex-Soviet sphere, Asia, and Africa.⁷

However, in the academic sphere Huntington's *Clash of Civilizations* ignited heated debate on many fronts. Perhaps the most notable criticisms is that while Huntington posits 'civilizational tensions' as the source of conflict he makes little effort to explain where these underlying tensions come from in the first place.⁸ Also, Huntington has been criticized for proposing a "... potentially self-fulfilling prophecy... [that] can be seen as feeding into antipathy to so-called 'non-Western cultures'."⁹ What roll does this piece play in the narrative of the feasibility thesis? How does the political economist respond to the assertion that rising civil war is a result of a redrawing of the fault lines which grievances are based on?

⁶ Huntington (1996)

⁷ Fearon and Laitin (2003) graph that in the immediate years following the collapse of the Soviet Empire the percentage of all states involved in a civil war rose by as much as 5%. Miall (2007) p. 95-6 also shows similar findings. Also, it is worth noting that almost quantitative studies on civil war start their analysis at 1945. It is generally agreed that at this point in time the nation-state form of governance became solidified as the only game in town, representing a new era international politics.

⁸ Keen (2008)

⁹ Ibid (2008) p. 97

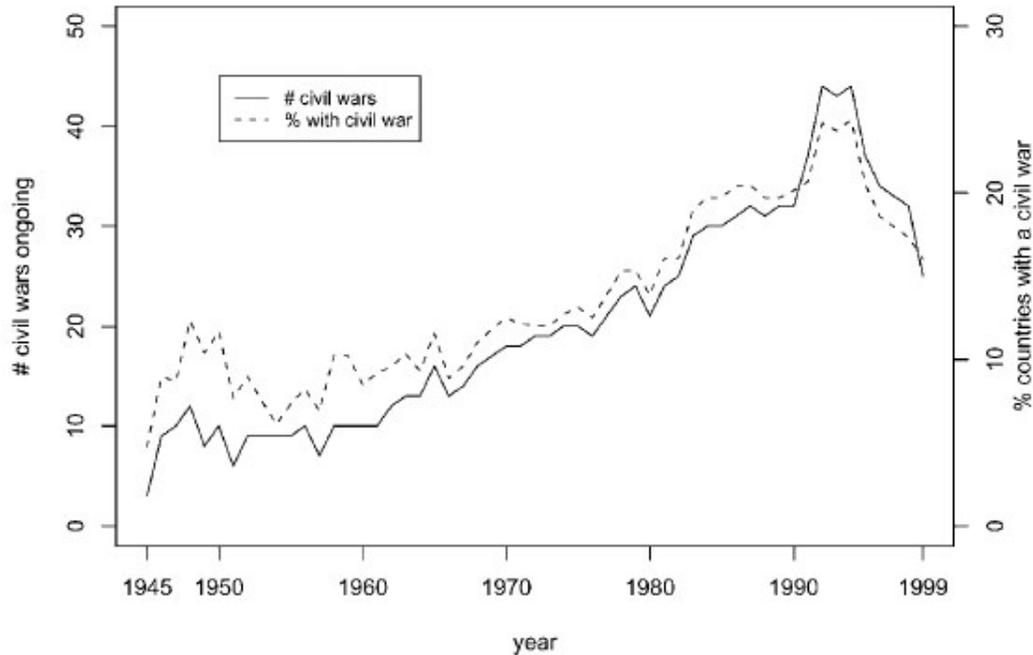


Figure 1.1¹⁰

A political economist might start by questioning whether intrastate violence has increased since the end of the cold war at all; this being one of Huntington’s starting points. At first glance a look at the data suggests a strong affirmation to Huntington. Indeed, in the immediate three years after the Soviet collapse over a dozen intrastate conflicts broke out. However, this short time horizon produces a small dataset. What we may end up with is a shortsighted perspective to the growth of intrastate conflict. If we look at intrastate conflict as part of a larger data set, beginning with the end of the Second World War, we may find a very different picture before our eyes.

Fearon and Laitin show that if we consider the rate of intrastate conflict beginning in 1945 then the recent spike of growth in the number of intrastate conflicts, and the subsequent drop after, are anomalous in a larger “almost-linear” trend of increasing intrastate conflict.¹¹ Given this perspective the political economist sees that Huntington’s conjecture that the end of the cold war brought ethnic and religious conflict to a heightened level of primacy cannot be correct. Intrastate conflict has been on consistent

¹⁰ Reproduced from Fearon and Laitin (2003) p. 77

¹¹ Ibid, p. 77

rise for 65 years. So if not the relatively recent event of the end of the cold war, then what is it that has made religious and ethnic identity so primary in forming intrastate conflict?

The modernization perspective suggests that ethnic and religious cleavages are still the driving force behind conflict, but that it is economic modernization and the formation of a modern state, a process more relevant to the last few hundred years, that make these cleavages salient.¹² The essential idea is this: modern economic and state practice has brought a new level of upward mobility. However, in ethnically and religiously diverse states there is often a majority that holds a disproportionate amount of power and can thus create upward mobility blocks for minority groups. From here the inequality sparks grievance. While at first read this approach has a straightforward logic, it only takes a second thought to start thinking of counterexamples of extremely heterogeneous states that have unimpeded paths to upward mobility for most.¹³

To the political economist the logic that follows the modernization perspective is that highly homogenous states should show little conflict while more heterogeneous ones should show more conflict. Does the level of state homogeneity really create a cross-case trend of predisposition to fractionalization and eventually violent conflict? The easiest way for a political economist to address this question is to compare quantitative data; the level of ethnic homogeneity in countries against occurrences of civil war in countries.

What Fearon and Laitin find in for poor countries in this regard is very insightful.¹⁴ At one end of the distribution of poor countries we have complete ethnic homogeneity, where the probability of civil war is about 40%. On the other end of the distribution is low ethnic homogeneity, where if the modernization perspective were correct we would expect to find higher incidence of civil war. The probability of civil war at low ethnic homogeneity is just more than 40%. However, what is revealing is what lies in between; as what we see is a bell-curve distribution. It is relative homogeneity, where polarization can occur, that produces the highest (around 60%) likelihood of civil war.¹⁵ Counter intuitively; it may actually be that increased heterogeneity makes it harder to

¹² Ibid, p. 78

¹³ While certainly contestable, I would put forth the highly developed western states of North America and Western Europe as examples of this.

¹⁴ Fearon and Laitin (2003). These specific findings are relevant to countries with a GDP *per capita* of around 1,000 USD at 1985 value and the probability of civil war in a five year period.

¹⁵ This statistical analysis comes from mainly Fearon and Laitin (2003), but is also reaffirmed by De Soysa (2009).

mobilize because various cultural identities are so intertwined. De Soysa surmises well by saying “Diversity hampers ethnic mobilization due to cross cutting cleavages, but it is homogeneity (or polarization) that is risky.”¹⁶ To the political economist this discord between concept and data weakens the modernization perspective’s leverage as the causally determinate force to explain civil war.

With the aid of the political economists keen eye for quantitative analysis we are beginning to challenge several widely accepted notions of ethnic and religious grievance as the primary causal force of conflict. However, this does not change the fact that there are numerous civil wars occurring as we speak whose leaders all push grievance-based justifications for their violent actions. How can we reconcile this dissonance between the theory, the quantitative data, and the eye level reality? From here we can transition into the discussion of primordialist versus instrumentalist arguments about ethnic and religious identities in violent conflict. Again, Huntington useful as his views are perhaps the quintessential embodiment of the primordialist perspective, as he asserts outright:

In the modern world, religion is central, perhaps the central, force that motivates and mobilizes people... What ultimately counts for people is not political ideology or economic interest. Faith and family, blood and belief, are what people identify with and what they will fight and die for.¹⁷

This is the fundamental embodiment of the primordialist view on religious identity; that ethnicity and religion are deep seeded connections to culture, psychology, and history that because of their static state inherently breed conflict.¹⁸ This is the perspective that, through the eyes of the feasibility thesis, we have been challenging thus far.

At a very basic level we have been assuming the veracity of ethnic and religious identities. However, surely there are times when ethnic and religious identities are used in an instrumental fashion. We can use the term ‘identity entrepreneurs’ to describe those that instrumentalize identity, be it ethnic; religious; or any other, to mobilize groups and

¹⁶ De Soysa (2009) p. 3

¹⁷ Huntington (1996) p. 27

¹⁸ Ellingsen (2006) p. 17

gain access to political and economic resources for personal agendas.¹⁹ The paradox of the instrumentalist perspective is that you will almost never hear a leader admit to the manipulation of identities; and no wonder for it is a rational choice. “A narrative of grievance is not only much more functional externally, it is also more satisfying internally.”²⁰ Collier’s assertion here is even in a conflict where the motivation could be essentially greed; the entire discourse can take place within the context of grievance.²¹

The logic of the political-economist’s doubt about primordialist views is this: if there are cases in which identity is used in an instrumental fashion to create grievance and mobilize groups, how can we distinguish these from those groups to whom grievance may be a genuine source of conflict? It is in the interest of every group, motivated 100% by greed or not, to sell their conflict as grievance-based. The point is not to say that all grievances are false or delusional, but to suggest that this inconsistency in the role of grievance means it cannot be the determinate causal element that drives violent conflict.²²

Thus far we have visited a number of traditional grievance-based perspectives on the root causes of violent conflict and discussed the major critiques in the eyes of a political economist. We can begin to see that the narrative of the political economist is beginning to take shape. The story we are telling shows that grievance-based arguments about violent conflict that, while attractive for their intuitively logical nature, neglect many of the cross-case quantitative trends. But what does the discerning political economist offer as an alternative?

Scarcity Based Arguments

As we move away from the messy world of the grievance-based narrative towards an approach that might be more satisfying to the political economist, the first place that may appear promising is the world of scarcity based arguments. Homer-Dixon paints a

¹⁹ This term and its definition are modified from De Soysa (2002).

²⁰ Collier (2000) p. 92

²¹ Ibid

²² De Soysa (2002)(2009) as well as Collier, Hoeffler, and Rohner (2009) briefly postulate that grievance based narratives do not generate violence, but it may be that violence generates grievance based narratives. This is a difficult line of thought to disaggregate and empirically study. However, it is worth mentioning, as the role of grievance narratives will become a clear continuity gap as we explore greed-based explanations to violent conflict in this chapter and points about causal sequence in Chapter Four.

vivid and dramatic picture of the world we face from the perspective of scarcity based arguments:

Within the next fifty years, the planet's human population will probably pass nine billion, and global economic output may quintuple. Largely as a result, scarcities of renewable resources will increase sharply. The total area of high-quality agricultural land will drop, as will the extent of forests and the number of species they sustain. Coming generations will also see the widespread depletion and degradation of aquifers, rivers, and other water resources; the decline of many fisheries; and perhaps significant climate change.²³

While this description is vivid, it may be distracting. It will be hard to find many who deny population growth and environmental depletion. However, what we are looking at is essentially a market argument. As demand (population) goes up, supply (sustaining resources) is going down. What this creates is a scarcity of resources, particularly non-renewable resources, and increased competition to control these resources. In the scarcity based argument it is this competition for resources that serves as the grounds for violent conflict.

However, much like the argument that the cold war created a spike in intrastate conflict, the scarcity argument may be plagued by its data horizons. The scarcity argument is essentially looking forward, asserting that scarcity will continue to grow as the source of conflict. If we look back though, to the data to present and the larger trend, what will we find about the role of resource scarcity in violent conflict?

De Soysa, working from a regression analysis, finds that scarcity of renewable resources, even when conditioned by population density, does not hold any significant corollary relationship to conflict.²⁴ What is perhaps more revealing is that the presence of an abundance of natural resources, in the form of finite mineral resources, holds a positive a corollary relationship to conflict.²⁵ This is somewhat bewildering; as it is resource scarcity that should be correlated with conflict, not abundance. The population has more than tripled in the last century, if scarcity arguments are correct wouldn't we

²³ Homer-Dixon (1994) p. 5. These ideas of the economic role of scarcity are not all too new and can be traced back to Thomas Malthus and his Malthusian Trap. However, the modern embodiment of Neo-Malthusian arguments and their relation to armed conflict are perhaps best presented in Homer-Dixon.

²⁴ De Soysa (2002)

²⁵ Ibid

expect some reflection of this increased competition in the data from the same time span? This discrepancy seems to lead to more questions than answers. What role do resources play in conflict?

While scarcity arguments appeal to our intuition, it is their quantitative reflection that is lacking. This should not imply the unimportance of environmental and demographic change. Indeed, time may show that scarcity arguments are correct and do become the driving forces of violent conflict. However, to date the effects of environmental scarcity and demographic change are not evident in any quantitative trends of violent conflict. Exploring the role of resource scarcity and abundance in conflict through the eyes of a political economist provides a useful transition into discussing greed-based arguments of civil war.

Greed-based Arguments

When attempting to untangle the web of influence that surrounds the role of resource abundance in violent conflict a good place to start is with the concept of a resource curse. The basic premise is this: for a host of reasons, countries that are rich in non-renewable resources, such as oil or minerals, tend to have less economic growth and weaker development than those countries that have fewer of these non-renewable resources. Because of the paradoxical nature of this assertion the resource curse is often cleverly called the paradox of plenty.²⁶

Why this phenomenon occurs is postulated for a wide variety of reasons. Perhaps it is because finite resources are inherently valuable, precisely because of their finite nature, and thus can incentivize over development of a primary commodity export (PCE) led market. In many underdeveloped countries rent-seeking behavior may go hand and hand with PCE led markets. Rent-seeking in general terms is when value is extracted from production without any direct contribution to production. Oil extraction in Angola makes a perfect example of rent-seeking. When oil was discovered off the coast of Angola the government had neither the capital nor expertise to exploit this newfound

²⁶ Though the idea of a resource curse began to emerge in the mid 1980's it wasn't until the 90's that it became more formalized. Auty (1993) and Karl (1997) are fantastic examples of this.

wealth. Angolan government sold contracts to international oil companies to develop offshore oil production, the profits from which the Angolan government places considerable taxes (rents) on. The Angolan government does not contribute to oil production, but directly profits from it and has an interest in maintaining those profits.

There are weaknesses to this arrangement however; PCE led markets are more exposed to global swings in commodity price. Also, the development of a PCE led market may inadvertently decrease the competitiveness of other market sectors.²⁷ The point is to understand that resource wealth isn't always a good thing for a country. Resource wealth can do damage to a state's vital government structures and institutions, thus weakening its power and resolve considerably. In this regard, is it possible that resource wealth plays a role in the incidence of violent conflict?

Collier and Hoeffler have perhaps made one of the most important base assertions as to the role of resource wealth in civil war. Working from a regression analysis of civil wars since 1945 the findings show a strong correlation between percentage of GDP comprised by PCE's and the likelihood of incidence of civil war.²⁸ To be precise the findings show a bell curve distribution in which countries are most likely to engage in civil war when 32% of GDP is comprised by PCE. This is not the sort of linear relationship that might suggest a simple causal link between the two variables and the bell curve distribution requires more subtle explanation.

The explanation is one of the foundations of greed-based arguments on violent conflict. As natural resource dependency goes up there is more and more lootable income for rebel groups to attain in funding rebellion. However, past the threshold 32%, the income from PCE's to the state is sufficient to ensure the funds for the state suppression of conflict. This is a radical departure from the views of conflict that we have explored thus far. In essence what we are saying is that it is the opportunity for profit, rather than grievance or need, that is the driving factor in violent conflict. This is the keystone of greed-based arguments.

²⁷ Akin to the "Dutch Disease," in which revenue from natural resource exploitation increases the value of national currency and inadvertently hurts the national manufacturing sector by making goods more expensive for other countries to buy.

²⁸ Collier and Hoeffler (2004)

While the data is revealing, there is much to unravel. If we can be even more specific about what PCE's we are interested in we may be able to be more precise about the role or resource in conflict. PCE's can include everything from agriculture and forestry, to oil and mineral wealth. The point is that many of these resources require the control of refining centers and national distribution networks to utilize and may not represent a plausible profit for rebel groups.²⁹ Perhaps these resources are a mark of the poor institutional and democratic development of a weak state that often accompanies the resource curse, and provide the political instability that can lead to civil war. However, resources that require little or no refining and can be sold on the black market, for example diamonds and drugs, represent enormous opportunities for profit to rebel groups.³⁰

It is important to remember that not all economic activities are more profitable in conflict; rather most are impeded by it.³¹ Thus, another way to think about the role of resources in civil war is not just to talk about potential for gaining resources, but the resources that will potentially be lost by engaging in conflict. In Collier and Hoeffler's study this potential loss of resources is conceived as the 'cost of rebellion.' Using male secondary education enrollment, *per capita* income, and *per capita* income growth as proxies for "earnings foregone in rebellion" Collier and Hoeffler argue that as potential economic losses go up, the likelihood of violent rebellion goes down.³²

To build a further understanding of the weight of Collier and Hoeffler's study in shaping the greed and grievance debate we have to look beyond its analysis of the potential loss and gain of economic resources in civil war; i.e. greed-based arguments. Collier and Hoeffler also spend considerable time trying to quantify grievance and evaluate its relationship to incidence of civil war. At the bottom line their study finds that "most proxies for grievance were insignificant: inequality, political rights, ethnic polarization, and religious fractionalization."³³ The weight of these findings, that greed

²⁹ Fearon and Laitin (2003)

³⁰ De Soysa (2002)

³¹ Keen (2008) Keen thoroughly divides economic activities in conflict into those that are impeded by, consistent with, or more profitable in a state of conflict.

³² Collier and Hoeffler (2004) p. 588

³³ Ibid

rather than grievance is the collective explanatory variable with the strongest correlation to civil war is the central point of discourse in the study of conflict today.

To many this position is a harsh and abrasive; decontextualized from the reality of civil war. However, to the political economist the evidence is clear. These findings paved the way for the formation of Collier, Hoeffler and Rohner's feasibility thesis, a work that is undoubtedly the spearhead of greed-based arguments of civil war today.

The goal of the feasibility thesis is to create an overarching framework to connect all of the correlating economic variables to violent conflict under one concept. Indeed, each of the many variables that have correlation with civil war, while revealing, on their own do not provide sufficient leverage for developing a predictive theory of the causes of civil war. However, conceived together as part of an overarching measure of the likelihood of civil war these scattered variables appear to gain considerable explanatory power. The maxim of the feasibility hypothesis is:

... that where a rebellion is feasible it will occur: motivation is indeterminate, being supplied by whatever agenda happens to be adopted by the first social entrepreneur to occupy the viable niche, or itself endogenous to the opportunities thereby opened for illegal income.³⁴

In the eyes of a political economist we consider a theoretical threshold where the strongly correlated variables to violent conflict, such as per capita income; democratic and civil liberties; new statehood; political instability; mountainous and noncontiguous territory; population; and reliance on PCE's, converge into an overall measure of feasibility³⁵ To some political economists the feasibility thesis contends as perhaps the most promising prospect in the effort to understanding violent conflict. With their quantitative logic and clear metrics greed-based explanations for civil war have reached widespread acceptance in the international community, indeed they have had considerable policy influence. However, this should not suggest that greed-based arguments go uncontested. Especially in the academic world the latest iteration of greed-

³⁴ Collier *et al* (2009) pp. 24

³⁵ Fearon and Laitin (2003) While Fearon and Laitin do not use the specific term of 'feasibility', rather 'conditions that favor insurgency', their ideas are largely congruent to those of Collier *et al* (2009).

based arguments comprised in the academic narrative of the feasibility thesis have encouraged a robust discourse that deserves serious attention.

Critiquing Feasibility

From here we can enter into a critique of the feasibility thesis on two fronts. Firstly, we can take a closer look at the academic narrative that feasibility uses to negate other, primarily grievance-based, arguments about civil war. Secondly, we can in turn make a more careful examination of the feasibility thesis itself, hopefully revealing any weaknesses or non-sequiturs.

The Academic Narrative Of Feasibility

Feasibility takes on an academic narrative that seems to convincingly place its findings in a larger set of economic understandings about civil war. However, at each step in the feasibility thesis's academic narrative we can interject, offering insight into the way feasibility justifies its positions and the overarching consequences of this manner of argumentation.

The academic narrative of feasibility argues that the spike of intrastate conflict that followed the fall of the Soviet Union could not serve as a justification for the assertion of the returning primacy of ethno-religious identities as a source of intrastate conflict because this spike was merely an anomaly in a larger linear trend.³⁶ However, while there is little to argue as to the veracity of this statistical interpretation, committing too wholeheartedly to it may be problematic. Treating the spike in civil war as anomalous discounts the causal forces that precipitated it. Regardless of statistical trend understanding what caused this spike, or indeed the larger trend, requires an examination of real world events and the causal mechanisms under which they operate. The end of the cold war may indeed have an explanatory role here, even if that role is part of a larger trend.

³⁶ Ibid

Also, the academic narrative of the feasibility thesis is able to cast considerable doubt on the conceptual logic of modernization perspectives for explaining civil war. If the logic of modernization explanations suggests that highly homogenous states should be peaceful while highly heterogeneous states should be more prone to conflict, then indeed this conception is problematic. This linear logic is not reflected in quantitative data. However what is found is even more revealing. The clear bell-curve relationship between state homogeneity and incidence of civil war should not serve as means for discounting the relevance of the modernization perspective outright, but rather as the grounds for a revision and nuancing of its logic to increase its explanatory leverage. There is a relationship between state ethnic homogeneity and incidence of civil war; just because this relationship is not linear does not mean it should be disregarded.

The academic narrative of feasibility addresses the issue of primordialism vs. instrumentalism with potentially discounting logic. The logic goes that if we cannot tell the difference between the primordial force of identity (grievance-based) and the instrumental use of identity (greed-based) then, because every actor is incentivized to adopt grievance-based explanations, we cannot accept identity as a causally determinate force for civil war. This reasoning is misleading, as we cannot identify instrumental use of identity as a determinate force either. Throwing out this line of inquiry is careless. This dyad requires more nuanced explanation that can pay attention to the interplay between primordial and instrumental explanations for the role of identity in civil war. Especially the contributions of rational actor frameworks, which focus on collective action problems, can lend much insight here.

Regardless of instrumental manipulation or not, identity and grievance are the medium by which participants experience conflict. Accordingly, paying attention to such identity related explanations is essential. It may be that this points to a need for a further explanation into what starts versus what sustains conflict.³⁷ Identity may play different roles at different points in the timeline of a conflict.

Scarcity based, and in turn resources curse based, explanations for civil war are particularly important to dissect as they serve as a foundational concept in greed-based arguments. While most of the academic narrative of feasibility focuses on statistical

³⁷ Keen (1998) makes a particularly good discussion of the shift to self-sustaining 'conflict systems'.

refutation of alternative perspectives it seems that the strong correlation between resource dependence and civil war serves not only as counterfactual evidence against scarcity based arguments, but as support for a greed-based explanation of lootable resources. However, De Soysa astutely points out that "... resource dependence is not abundance..."³⁸ In other words: it is a mistake to think that because a high percentage of a nation's GDP is comprised by PCEs that they have an abundance of such resources, even though this is often the case. Just because a nation is economically dependant on certain resources does not mean that they are rich in those resources. Two other points about scarcity based arguments are worth explicating. First, just because there is no corollary relationship between resource scarcity and civil war to date does not mean that other causal dynamics, such as tipping points or threshold effects, cannot become evident at a later time. Examining the relationship between resources and civil war highlights the importance of taking a long-term perspective that can pay explicit attention to the dynamic nature of causation. Exploring alternative conceptions of causation and the importance of time is the primary focus of Chapter Three.

Second, while it may be that PCEs like uncut gems provide a lootable income to fund violence, not all PCEs can be treated the same.³⁹ There is a wealth of research to suggest PCE dependence on resources like oil, that require the control of immense infrastructure to harness for profit, may have more to do with driving weak institutional and economic development and in turn conflict, rather than providing lootable incentives outright.⁴⁰ Luong and Weinthal in particular has provided an impressive and convincing work positing that it is resource ownership structures in particular that are causally determinate in institutional and economic development.⁴¹ It is not enough to say that PCE wealth brings curses, as we will see in Chapter Three we must be attentive to context.

This review of the academic narrative of feasibility is telling in that it highlights an overarching problem: that while the probabilistic logic of multivariate regression analysis employed by most proponents of greed-based explanations is extremely adept at *identifying* causally related phenomena, it's ability to *explain* the diversity of causally

³⁸ De Soysa (2002) p. 405

³⁹ Ross (2004) highlights that when we include agricultural commodities, for example, these relationship are not present.

⁴⁰ See Kaldor *et al* (2007)

⁴¹ Luong and Weinthal (2010)

determinate mechanisms operating between such phenomena is limited. The idea that if a variable is not quantitatively correlated with an outcome it must be causally irrelevant, or in the language of feasibility ‘incidental’, is fatally flawed.⁴²

This may reveal a paradox: how can a logic based in probabilism possibly come to a causally determinate conclusion about the causes of civil war? Even if the probability of an outcome is 100% this does not explain the causal mechanisms operating between two variables, only that they are connected. This is known as the black box problem, the consequences of which will be discussed in much greater depth in Chapter Two.

Beyond Narrative: Continuity Gaps In The Feasibility Thesis

While understanding the narrative that the feasibility thesis exists as part of within the larger academic discourse, and some of the issues within that narrative are important, it is also essential to turn specific attention to the feasibility thesis itself; critiquing its particular structures and their consequences. Keen outlines three astute points that are worth stressing.⁴³

Firstly, the feasibility thesis can be criticized for its selection of proxy variables to represent greed. “Why, for example, should low literacy levels be taken as a proxy for ‘greed’ (as they were by Collier) rather than as a proxy for ‘grievance’?”⁴⁴ Indeed, as highlighted in our discussion of the role of PCE dependence in civil war above, deciphering whether a variable is more relevant to one mode of explanation over another is difficult. Also, this perhaps reiterates the point that statistical analyses make minimal effort to explore the contextual information necessary to explicate the causal mechanisms operating in a relationship between variables, and thus surmount such issues of proxy interpretation. This is a weakness that can perhaps only be overcome by synthesizing approaches and findings. Along similar lines, Miall points out the practical difficulties

⁴² To be fair, most quantitative practitioners are quick to mention the hard line that correlation does not equal causation. However, sometimes this truism is lost when it comes to writing up a data analysis. Thus, a misleading interpretation may come to those who are not familiar with the more nuanced points of statistical analysis.

⁴³ Keen (2008)

⁴⁴ Ibid, p. 28. Collier and Hoeffler (2004) posit that low literacy represents low job market mobility and thus a larger population of recruitable rebels.

with identifying what actor's interests actually are.⁴⁵ How can we say what economic rationale is actually being employed?

Second, the way that the feasibility thesis deals with the difficulties that arise from trying to quantify the diverse world of grievances is to effectively ignore them. Grievance is conceptually very difficult to quantify. Understanding grievance requires a shift from the underlying 'rational actor' framework in feasibility thesis to one informed by psychology, sociology, and history.⁴⁶ In light of this difficulty quantitative methods are ill-equipped to capture the nuance of individual and collective grievances. Thus, perhaps, we should not be surprised at all that there are no correlations between variables that should proxy for grievance and incidence of civil war.⁴⁷ The logic that because grievances have no quantifiable correlation to civil war they are irrelevant is deeply mistaken.

Thirdly, and most importantly, the feasibility thesis has no space for conceptualizing the role of the state, neighboring states, and non-regional actors in inciting and perpetuating conflict. By only talking about rebel motivations the feasibility thesis effectively absolves the role of non-rebel actors in civil war. "The reality is that governments and government forces – from within and beyond a crisis effected country – may do at least as much as rebels to propel and deepen civil conflict..."⁴⁸ If there are ways in which war is profitable for rebels there are certainly ways in which it is profitable for governments as well. Keen's work on Sierra Leone provides a clear example:

What sustained the rebellion more than anything seems to have been the role of the Sierra Leone army. In a bizarre pattern, government soldiers in the early and mid-1990s were observed attacking civilians, engaging in illegal diamond mining, dressed up as rebels, selling arms to rebels, and coordinating movements with rebels so as to minimize clashes and maximize the exploitation of civilians. In an Orwellian twist, it was logically

⁴⁵ Miall (2007)

⁴⁶ Keen (2008)

⁴⁷ There will be further discussion of this idea in Chapter Two.

⁴⁸ Keen (2008) p. 31

‘impossible’ for government soldiers to abuse civilians, since those who did so were quickly labeled deserters or rebels.⁴⁹

This is only a brief example of the countless ways in which a state can incite, exacerbate, and sustain conflict. There are clearly two sides to every coin.

The role of neighboring and regional actors highlights a further conceptual void in the feasibility thesis. It is often the case that neighboring or regional actors can fund, or support in other ways, factions in a civil war as proxies. For example, In the recent conflict in the Democratic Republic of Congo (DRC) the government and the rebels were both backed by different sets of regional actors. The Zairian Armed Forces (FAZ) rebels were supported by Rwanda and Uganda, while the DRC government was backed by Angola, Zimbabwe, Namibia, Chad and Sudan. What is worth noting here is the enormous profits that these proxy actors have made by plundering resources, particularly mineral and lumber, in the war torn DRC. Actors like Rwanda, Uganda, and Zimbabwe in particular have a clear economic interest in sustaining the state of bedlam in the DRC that facilitates their plunder. Leaders have even alluded to this fact in public. “... Rwandan President Paul Kagame’s government described its military activities in the Congo as ‘self-financing’.”⁵⁰

What is perhaps most perversely absent from the feasibility thesis, a piece that is strikingly in line with neo-liberal economic prescriptions, that it has no conceptual space for understanding the role of non-regional actors, especially the role of transnational corporations. For it is these groups that are often held least accountable for their roles in civil war. There has been some market accountability aimed at the procurement and sale of ‘conflict diamonds’ by groups like De Beers, however other minerals and resources obtained in a manner that congruently funds conflict have seen little attention.

Most notable of these other resources is oil. Oil companies routinely do businesses with violent and suppressive governments, as well as rebels, with the hopes of gaining favorable resource extraction concessions. China’s role in supporting the abusive regime in Sudan through its oil purchases or the continued offshore oil extraction by

⁴⁹ Ibid, p. 32. Keen also outlines an impressive list of ‘sell-games’ in other countries like Cambodia, Uganda, Angola, Philippines, Indonesia, Peru, Colombia, DRC, Guatemala, Chechen Russia, South Africa, Kashmir, and Vietnam.

⁵⁰ Ibid, p. 41

foreign companies funding the 1975-2002 conflict in Angola are clear examples of this dynamic.⁵¹ Likewise the banking industry has played a continuous role in facilitating conflict worldwide since WWII. Countries have been slow to hold banks accountable for their tacit involvement in the laundering of stolen or illegally procured money that often comes from or fuels violent conflicts.

However the greatest impact of transnational companies in violent conflict comes from the arms industry. For no other industry so directly profits from the continued proliferation of violent conflict worldwide. In 1995 the five permanent members of the UN Security Council accounted for the origin of over four-fifths of the weapons exported to the developing world.⁵² Perhaps it is no surprise that arms dealers are rarely held accountable, as there is an enormous vested interest in their continued growth by the western world. “A huge military-industrial complex has come to depend on the arms trade, particularly in the US. Arms, like drugs, tend to create their own demand: the supplies are addictive for abusive governments; and the more you sell, the greater the demand.”⁵³ While it is easy for arms dealers to say “we just sold them the guns, what they do with them is their business,” the tacit support these companies, and in turn their governments, lend in facilitating conflict has no room for explanation in the feasibility thesis. Surely a civil war is less *feasible* without the abundant availability of arms.

This review of the feasibility thesis illustrates two points. First, the problematic nature of the probabilistic logic used to justify the academic narrative of feasibility, and later to discount the role of grievance. This issue will be addressed with systematic attention in Chapter Two. Second, that at an operational level the feasibility thesis fails to conceptualize the contextual complexities inherent in civil war regardless of whether they are greed or grievance-based. This point may be further accentuated in examining a counterintuitive case example in Mexico’s Drug Wars.

⁵¹ Ibid, p. 43

⁵² Ibid

⁵³ Ibid, p. 45

Mexico's Drug Wars: A Case For Feasibility?

The ongoing conflict between drug trafficking organizations and the Mexican Government provides a unique opportunity to view the points of economic incentive for violence. For unlike many other conflicts whose discourse takes place entirely in the narrative of grievance, masking economic motivations, those that participate in persisting the drug war in Mexico are unapologetic in their greed-based agendas.⁵⁴ Indeed, Mexican drug trafficking organizations have no “revolutionary, separatist, or ideological agendas.”⁵⁵

Mexican drug cartels are thought to control 70% of the flow of the narcotics that enter the United States.⁵⁶ This is an enormous market share of what estimates suggest is a 13-50 billion dollar a year industry.⁵⁷ Incentive to participate in drug trafficking despite mounting costs is undeniable. In late 2006 the Mexican government made a shift, with pressure from the USA, towards punitive efforts to combat drug traffic. The result has been an estimated 18,360 deaths since December 2006 related to drug enforcement efforts.⁵⁸ Indeed, the case of Mexico's drug wars fits well within the feasibility thesis's quantitative criteria for what constitutes civil war.⁵⁹ However the case of Mexico's drug wars, as well as other drug conflicts such as those in Colombia and Brazil, have not been included in the feasibility thesis's dataset despite meeting all the criteria for analysis. Evaluating these cases in light of the feasibility thesis may provide considerable insight.

Let us take a closer look at the various elements of feasibility to see how Mexico lines up on a quantitative level.⁶⁰ Economically speaking Mexico fits in line with the feasibility thesis. Mexico's GPD is 1.1 trillion dollars, standing at 14th in world rankings. Also, Mexico ranks 56th on the human development index, with a score of .75, and classified as a highly developed country. However, GDP *per capita* comes in at \$9,230

⁵⁴ Lessing (2009)

⁵⁵ Ibid, p. 1

⁵⁶ Creechan (2009) Also, this is not taking into account the Mexican trafficking to Europe.

⁵⁷ Cook (2009)

⁵⁸ This is a high estimate. More conservative estimates range as low as 11,000. See Creechan (2009).

⁵⁹ Most of the statistical analysis we have reviewed in this piece use civil conflict with at least 1000 battlefield deaths a year as its threshold for measure. The case of Mexican drug wars fits well within these bound as the annual death toll since 2006 averages around 5,500.

⁶⁰ All of the following statistics in this section are from The Wolfram- Alpha Knowledge Database (2011) unless otherwise noted.

USD, which puts Mexico at 86th in world rankings. Does such high GDP with such a relatively low GDP *per capita* suggest unequal distribution of capital? Mexico's Gini score of .48 suggests a resounding yes. This goes in line well with the feasibility thesis's notion that "... there are two reasons to expect that low *per capita* income would directly increase the risk of rebellion: the opportunity cost of rebellion is lower, and the state is likely to have less control over its territory."⁶¹ This inequality coupled with low growth, 89th in the world at 4.3%, also seems to favor rebellion in that "... the faster is growth the tighter will be the labour market and so the more difficult will it be for the rebel organization to recruit. (sic)"⁶²

As far as PCEs are concerned Mexico does not fall in line with feasibility. Mexico has seen a continually dropping reliance of PCEs with their total export value today, including all manufactured goods, sitting at 307.8 billion, a relatively low 30% of GDP (remember that it is around 32% that is supposed to be most dangerous). However, it is not inconceivable that early higher reliance on PCE's may have encouraged poor developmental paths that are still relevant today.

While economically speaking Mexico is in line with the feasibility thesis, from a historical perspective it is not. Mexico is not a former French colony, which has shown to be corollary to civil war in Africa. Also, it is unlikely that Mexico's drug wars taking place in the post cold war world has much relevance as Mexico saw little to no proxy interest for the USA or USSR during the cold war. The feasibility thesis also makes finds correlations between recent previous war and the likelihood of renewed conflict. Mexico has a long history of rebellions and harsh state oppression, of which perhaps the last was the Zapatista movement at the turn of century, however in the post-war world Mexico has had sustained peace. Indeed, many refer to the period from 1940-80 as the 'Mexican miracle.' Due to this sustained gap in conflict it seems unlikely that Mexico's former history of conflict would bear much relevance to its current challenges.

Elements of social fractionalization that are correlated to feasibility seem to be a mixed bag in Mexico. Ethnically Mexico is 60% Mestizo, those of a mixed Spanish and indigenous decent, and 30% Ameridian, more strictly indigenous. Only 9% claims direct

⁶¹ Collier *et al* (2009) pp. 7

⁶² Ibid

European lineage and mostly Asian or Black ethnicities make up the remaining 1%. We can see that Mexico is relatively homogenous and does not exhibit the sort of polarization that we might expect to feed intrastate violence.⁶³ However, this variable may be irrelevant in the case of Mexico's drug wars as there is no discourse of social grievance in the form of ethno-cultural fractionalization.

What may be revealing is that Mexico does have a high proportion of young males that constitutes "a great availability of potential recruits as rebel soldiers [that] makes it easier and cheaper to start a rebellion."⁶⁴ Choosing a specific statistic to represent 'young males' is a tricky matter though. Who are young males exactly? As we will stress in Chapter Four, the choices we make in defining variables must be theoretically informed.

Geography is also on the side of feasibility in the case of Mexico. The feasibility thesis has built on previous work to suggest that the presence of mountainous or noncontiguous territory may increase the feasibility of civil war as it can provide a safe haven for rebels to base their activities.⁶⁵ Mexico is crisscrossed by four major mountain ranges and holds sizeable swaths of largely uninhabited desert territory, especially near the US border, that have been the geographic focus of most drug related violence. It certainly seems possible that the geographic composition of Mexico could play a hand in creating an environment of feasibility.

Level of political rights, measured by democracy, is the last variable that the feasibility thesis includes in its analysis. Democracy's inclusion in the feasibility thesis seems odd considering that Collier and Hoeffler's 2004 study showed that it has an insignificant correlation to civil war. In the feasibility thesis this issue is only given three sentences of explanation. "The majority of academic work on civil war is conducted by political scientists. This reflects a presumption that it is at root driven by the grievance of political exclusion. We therefore include a measure of the extent of political rights."⁶⁶ The inclusion of democracy seems a token effort. However, this may fall in line with our analysis of Mexico's drug wars. Mexico has seen a continued and dramatic increase in its

⁶³ As discussed above and in De Soysa (2009).

⁶⁴ Ibid. p. 10

⁶⁵ Fearon and Laitin (2003), Collier and Hoeffler (2004), Collier *et al* (2009)

⁶⁶ Collier *et al* (2009) p. 11.

polity level over the last 35 years and today is considered a near fully consolidated democracy.⁶⁷ In this light it seems unlikely that the grievance of political exclusion is a driving force in the Mexican drug wars.

Indeed when viewing the quantitative criteria it is clear that Mexico should fall fairly well in line with the feasibility thesis's theoretical measure. However, as highlighted in the critique above, there are numerous contextual elements that the feasibility thesis fails to take into account. In the case of Mexico's drug wars this is certainly true. The role of the Mexican state, The USA, and arms dealers in particular are of paramount importance. Prior to President Calderón's 2006 shift to increased punitive actions against drug trafficking organizations there was a fairly stable low-level violence. Indeed, there is much evidence to suggest that Mexico's drug trafficking organizations preferred to minimize costly violence through utilizing more subversive methods.

In general, sustained attacks on state forces by drug trafficking organizations (DTOs) are rare. Unlike revolutionary insurgencies and other radical groups, DTOs do not seek to overthrow the state, drive an overt political agenda, or state secessionist claims. Rather, they seek to maximize profit, and their *modus operandi*, even in Mexico until recently, is to use anonymity, bribes, threats, and other types of leverage to minimize confrontations with state forces.⁶⁸

It can be argued that it is precisely the Mexican state's shift to punitive measures that has made violence a necessary path for Mexican drug trafficking organizations. It can also be argued that if corrupt and subversive means were not so feasible, violence may have become prevalent at an earlier time. However, what is most important to recognize here is a fundamentally different logic than that of feasibility. The feasibility thesis says that opportunity for economic gain will motivate violence. However what we are seeing here is that the costly enterprise of violence is minimized in an effort to maximize profits. It is the Mexican state's move towards enforcement that has made strategic violence necessary for drug trafficking organizations which evidence suggests would rather avoid such violence wherever possible in favor of other methods.

⁶⁷ This is according to the Polity IV project, the same source for polity measures that the feasibility thesis uses.

⁶⁸ Lessing (2009) p. 2

The feasibility thesis does not have room to conceptualize this shift from opportunity for illegal profit motivating minimized violence, to strategic violence, and further to all out violence. While this may suggest that Mexico's drug wars "present a potentially different internal logic than the insurgencies and nationalist civil wars" that are studied in the feasibility thesis, they are quantifiably indistinguishable from those conflicts that are included in feasibility's dataset and should be included.⁶⁹ The feasibility thesis is inattentive to the typological diversity of civil wars in its dataset, so why should it exclude drug conflicts on the basis of fundamentally different driving logics?

Other points that the feasibility thesis fails to conceptualize are the role of neighboring states, most notably the USA, and transnational organizations. The recent shift to punitive strategy in Mexico was in part due to large pressure from the USA, which has provided financial, technical, logistical, and training support to the Mexican state. Seeing as Mexico is the primary transit path for narcotics entering the USA, the US state has a huge interest in its neighbor's actions. This however may be juxtaposed against the role that transnational arms dealers play in the equation. While the USA pours enormous amounts of money into supporting the Mexican government in its efforts to combat illegal drug trafficking across the boarder, the US economy simultaneously maintains huge profits through illegal arms trafficking in the opposite direction across the border.

Finally, the feasibility thesis depicts civil war as a dyadic interaction between a rebel group and the state. In the case of Mexico's drug wars this may discount the dynamic competition not only between DTOs and the state, but also between DTOs themselves. In Mexico there are as many as nine main cartels competing for profit.

While at first quantitative glance the case of Mexico's drug wars falls well in line with the feasibility thesis's explanation for civil war, there are numerous contextual explanatory elements that the feasibility thesis cannot take into account. What this review suggests is that even in a case where the motivations for violence are entirely greed-based the feasibility thesis may not provide the conceptual framework to understand the causal forces behind such violence.

⁶⁹ Ibid, p. 4

It may be useful in cases like Mexico's drug wars, and furthermore Sierra Leone's most recent civil war, that are characterized by fracturing and corruption to consider models of exploitation such as Galtung's low-level 'structural violence'.⁷⁰ In light of the example of Mexico's drug wars we can conclude that policy must be informed by case level reality. Cross-case analyses such as the feasibility thesis cannot provide the insight needed for effective policy and diplomacy decisions.

Conclusions and Policy Implications

In this chapter we have made a review of the feasibility thesis. First we explored the academic narrative that justifies the feasibility thesis within the larger discourse of greed and grievance-based explanations for civil war. Second, we critiqued the logic of that narrative and the logic of feasibility as a whole, pointing out some contextual elements that the feasibility thesis fails to conceptualize.⁷¹ These points were further accentuated in the case example of Mexico's ongoing drug wars.

We should be clear though, the point is not to wholly negate the feasibility thesis. Indeed, as Mac Ginty and Williams put it, "few denied that a permissive economic environment could encourage conflict or that a self-sustaining political economy could develop. What we do object to is the argument that economic factors are the *primary* engine of war."⁷² The feasibility thesis makes an important contribution to our understanding of the economic factors connected to war. However, the feasibility thesis is mistaken in taking the role of economic factors to a logical extreme. "... a permissive environment does not amount to a causation factor. Certainly economic factors can enable civil war, but for combustion to occur, the economic factors need to spark with other factors."⁷³

The aim of this chapter is not only to detail a critique of the feasibility thesis, but also to provide an overarching emphasis on the importance of context. Civil war is an

⁷⁰ Galtung (1996)

⁷¹ While we were able to point out the contextual role of the state, neighboring states, and transnational companies there was not time in this piece to detail the considerable role that other elements such as famine, aid, and information play in civil war. For more detail see Keen (2008).

⁷² Mac Ginty and Williams (2009) p. 32

⁷³ Ibid

inherently complex phenomenon and the feasibility thesis only shows a part of the picture. The world of both greed and grievance-based contextual information that is needed to build a thorough understanding of civil war may indeed appear infinite. While it is tempting to try to ferret out the core causal elements, doing so risks discounting other valuable contextual information. In light of this, what we need are not theoretical frameworks that exclude contextual information as “indeterminate” but rather those that can comprehensively include and synthesize as much information as possible.

In turn, these insights point to the inappropriateness of the feasibility thesis as a policy-informing tool. The feasibility thesis and greed-based arguments for civil wars are attractive for their clear-cut and sometimes convincing findings. These explanations “have encouraged governments and policymakers to promote poverty reduction and economic diversification programmes – often based in free market remedies – as part of conflict prevention strategies.”⁷⁴ Indeed, there is nothing inherently wrong with these strategies. Poverty reduction is an important and inherently valuable effort. However, it is the uniform application of policy prescriptions without regard for the depth of contextual factors at work that can in the worst-case spell disaster; deepening grievances and fermenting resentment towards the west. Keen surmises this sentiment on econometric policy responses well:

It is stressed that, while the project of manipulating incentives holds out a good deal of promise, its cruder manifestations can be blinkered, mechanistic, ahistorical, arrogant and even counterproductive. Using the analogy of medicine, we need to understand not just how an intervention may attack a particular disease or infection but how *the body as a whole* will respond to that medicine, and what may be the unanticipated side-effects.⁷⁵

Greed-based policy responses face numerous practical challenges, however the commonality between such practical challenges is that they often fail to conceptualize the process by which people have arrived at a position of

⁷⁴ Ibid, p. 30 Perhaps this is no wonder, for it was the World Bank that funded Collier’s original paper that kicked off the greed-based explanations for civil war. This is a point of particular annoyance to many scholars who focus on grievance based explanations.

⁷⁵ Keen (2008) p. 174

violence.⁷⁶ Greed-based perspectives cannot consider the human experience. Again, the point is not to suggest that econometric policy responses are not important, but rather to stress that their design and implementation must be rooted in the contextual setting they are to affect.

So where do we go from here? We are faced with a policy regime informed by an academic narrative that, while extremely insightful and highly analytic in certain areas, fails to conceptualize the big picture of civil war. This is true of any one academic tradition, as all perspectives have ‘blind spots’.⁷⁷ To address the most useful path forward in the academic world we need to start at the base of our understandings.

Too often academic discourse takes place completely on the surface level of methodology. Occasionally scholars delve in to questions of epistemology. However, it is a rarity to find scholarly works that address substantive topics at an ontological level; explicating our very base assumptions about the world and their logical implications for our findings. These are the base assumptions that make our academic narratives possible from the outset. With such little attention to the ontological underpinnings of our knowledge it is perhaps no wonder that we cannot find the common ground needed to push the collective study of the causes of civil war forward.

Chapter Two moves with the premise that to build a holistic understanding of civil war and all its vast complexities we have to start from base level and work our way up; rather than merely squabbling at the surface. Just as Miall suggests that “the manifest conflict is the tip of the iceberg to a set of deeper contextual factors that shape its course,” the manifest academic discourse is but the tip of the iceberg to a corresponding set of ontological, epistemological, and methodological commitments that make our academic narratives coherent and logical.⁷⁸ Addressing these differences is paramount in reconciling the gap

⁷⁶ Keen (2008) outlines the particulars of many of these challenges very well.

⁷⁷ Pierson (2004)

⁷⁸ Miall (2007) p. 88

between greed- and grievance-based explanations for civil war and pushing the collective “scholarly enterprise of knowledge accumulation steadily forward.”⁷⁹

⁷⁹ Skocpol (2003) p. 417

Chapter Two

Scientific Inquiry & The Causes of Civil War

In the greed and grievance discourse, throughout the social sciences, and indeed academia as a whole there is an embedded discourse surrounding the search for best methodologies and practices of discovery. More specifically here, the term ‘method’ refers to the means scholars employ to support the inferences they make about the social and political world. The most important of these inferences are those about “...causal relationships, where the object of a methodology is to increase confidence in assertions that one variable or event (x) exerts a causal effect on another (y).”¹ To many this effort towards establishing best methodological practices is an obvious and inherently valuable endeavor.

However, it is too often that debates focus strictly on methodological issues at the expense of brushing over the epistemological, and in turn ontological, assumptions that underpin such methodological stances.² The epistemological and ontological positions we assume, consciously or implicitly, have profound impact on the types of questions we ask, the appropriateness of the methods we choose, and thus the validity of the findings we produce.³

If greed and grievance-based explanations for civil war come from fundamentally different ontological and epistemological foundations, then perhaps it is no surprise that the surface level discourse seems an irreconcilable dyadic confrontation. To best understand the strengths and weaknesses of what each perspective brings to the table we have to start at the foundation; only then can we formulate a useful path forward.

This chapter proceeds with the previously introduced concept of the academic narrative. We will review the ontological, epistemological, and methodological narrative that precedes the feasibility thesis’s academic narrative through the discourse of greed vs. grievance from Chapter One. Likewise, we will trace the academic narrative of a set of

¹ Hall (2003) p. 373

² Ibid, Scharpf (1997)

³ Bennett and Elman (2006), Hall (2003)

(mostly) qualitative perspectives that respond to the weaknesses in the foundation of the feasibility thesis through their ontological, epistemological, and methodological origins.

With these two stories about the fundamental nature of the world, what science is capable of knowing, and thus what methods are best to explore it, we can address a deeper discourse. Through contrasting these narratives we can identify the strengths and weaknesses of each; coming to the realization that all perspectives have ‘blind spots’ and thus are only a part of the picture.⁴ In light of this enormity we will be in a position to advocate for a pluralistic synergy of approaches to theory building and empirical investigation of the causes of civil war.

A Primer on Ontology, Epistemology, and Methodology

While methodology is a field that all social scientists are familiar with, the inherently related areas of epistemology and ontology often remain as vague notions in the back of our minds. Indeed as social scientists we all are educated in methodology routinely throughout our academic upbringing. However, far fewer social scientists find their way into lectures on the philosophy of science and thus might never grow the deep roots that allow scholars to explicitly ground their studies in a coherent epistemological and ontological foundation. Since these concepts are less intuitive to some it is useful to elaborate a brief primer on these topics before going on to make more in-depth and nuanced discussion.

The concepts of ontology and epistemology are more often than not so intertwined and inseparable that indeed we cannot make reference to one without implicitly speaking of the other. Thus while there is an indubitable distinction between the two ideas it may be useful to think of them as a conceptual couplet. In the most literal words ontology is the study of what is real. A more helpful definition may be that it is the study of the most fundamental nature of the world. When we talk about science ontological questions are things like: are the causal rules of the universe consistent across time? Or are there even real and regular causal rules at all? These sorts of question are so big that it is no wonder that many scholars avoid them; dismissing them as detached or

⁴ Pierson (2004)

esoteric. Indeed, ontology has largely been diluted under the poor auspices of metaphysics.⁵

What we more commonly hear are discussions of epistemological issues. Put plainly epistemology is the study of knowledge and knowing. If our ontological question is ‘are the causal rules of the universe consistent across time’? Then our following epistemological question could go along the lines of: in light of this, what kind of knowledge about the world can we gain and how can we justify this knowledge as true? More intuitively, methodology is the particular tools by which we investigate the world from there on. The conceptual differences can at times be subtle, but remain essential.

From here we can go on to make light of the foundational narrative of the feasibility thesis, and in turn the response of qualitative approaches. The picture that will emerge from this bottom up approach is not of two opposing perspectives with irreconcilable differences, but rather of two parallel narratives with distinct advantages based in their fundamentally different ontological positions.

The Foundations of Feasibility: Positivism, Probabilism, and Regression Analysis

Positivism is an ontological-epistemological couplet born of the natural sciences. In the later half of the 19th century seminal thinkers such as Comte and Durkheim would begin to pay specific attention to the circular dependence of observation and theory. Indeed, it is logically intuitive that observations serve as the pieces of the puzzle when we are building theory, and in turn that theory tempers our understanding of further observations in a cyclical manner. Comte and Durkheim’s core point was that observation is the starting point for discovering knowledge. Again, this is logically intuitive; how can we elaborate a theory without observations to inspire it? These intellectual developments brought the primacy of measurable observation to the foreground of the natural sciences and served as the foundation for the development of the scientific method.

The scientific method is undoubtedly the most influential framework for inquiry across academia; indeed today we are indoctrinated with its logic at school from a young

⁵ Bhaskar (2008)

age and it later continues to temper our vision of what good academia is. With the scientific method's emphasis on observation in mind it is clear why the social sciences have had trouble conforming to this ideal method, as many of the phenomena the social sciences wish to explain revolve around unobservable variables (e.g. many social and political processes). It is perhaps no wonder that from early on the social sciences have been regarded as 'weak' or 'soft' sciences.

In an effort to mirror the rigor of the natural sciences parts of the social sciences have continuously adopted methods based on quantifiable measurement and closed-system experimentation. Though in the last 50 years there has been an explosion in modes of academic exploration, observation based scientific method remains an ingrained logic implicit in most all of our serious academic exploration. In the later section on the critical response to positivism we will elaborate a much further nuanced discussion of its ontological underpinnings, but for now what is most important to understand is its focus on quantifiable observation through closed-system (controlled) experimentation as the key mode of knowledge discovery and verification.

In light of the continuous efforts of social scientists to produce rigorous and empirically based science in the tradition of positivism a series of statistically based methods, and their accompanying ontological and epistemological assumptions, have become central in the social sciences today. Regression analysis is the most central of these tools, and probabilism is its accompanying epistemological and ontological counterpart. Essentially regression analysis is a series of statistical tools designed to analyze the net-effects of independent variables on a dependent variable via correlations. In the 1870's eugenicist Francis Galton pioneered the application of regression analysis in his study of the size of seeds in successive generations of sweet peas and would later extend it to the study of height in successive generations of humans.⁶ Galton's findings were that the size of sweat peas and the height of humans in successive generations tended to *regress* towards the population mean, hence the coining of the term regression analysis. Though Galton's inquiries were in the natural science regression analysis proved a useful tool for the social sciences as well.

⁶ Though Galton was the one to coin the term 'regression' it is important to note that he was not the originator of the mathematical techniques behind regression analysis, rather the first known to use them in empirical investigation.

Regression analysis provides a unique tool that can, through the rigor of mathematics, establish otherwise invisible correlation relationships between observations. This is attractive because these invisible relationships are often exactly what the social sciences are interested in explaining. With the work of scholars like Udny Yule and Karl Pearson regression analysis would begin to be popularized in the social sciences by the start of the 20th century.⁷ Today regression analysis has reached paramount prevalence in the social sciences, indeed proving itself as a prolific and invaluable tool.⁸ However, to better understand the role of regression analysis in the social sciences we have to take a step back again to look at its probabilist ontological and epistemological underpinnings.

Probabilism is another ontological and epistemological couplet that is informed by and overlaps with positivism. Where as positivism is primarily concerned with the nature of the world as it relates to science, probabilism is focused on certain conceptions of the nature of causality and the epistemological issues of explicating that causation. Probabilism can perhaps be best understood as a response to simplistic conceptualizations of causal determinism. A simplistic deterministic causal argument appeals to our intuitive understanding of causation; going along the lines of (x) always causes (y) . However, when we keep things this simple we will find many common sense causal statements that aren't true. War does not always cause death and smoking does not always cause lung cancer.

In contrast, a probabilistic causal argument will go more like (x) probabilistically causes (y) ; that is to say that (x) 's occurrence increases the probability of (y) . Instead we might say that the increased intensity of war increases the probability of death and heavy smoking increases the probability of developing lung cancer. Or more specifically in the case of the feasibility thesis, we might say that a set of permissive economic conditions increases the probability of civil war. Again, this is a logical step that appeals to our intuition.

The distinction between the logic of causal determinism and causal probabilism is extremely important to understand, as each implies radically different standards for explaining the social world. By adopting a probabilistic logic of causation we bring

⁷ Yule's 1897 work "On the Theory of Correlation" is particularly important in this regard.

⁸ King *et al.* (1994), Mahoney (2001), Brady and Collier (2010), Freedman (2010)

certain epistemological and methodological issues to the foreground. If we operate a model of probability then to make a causal statement we would ideally evaluate every case of variable (x) against outcome (y) to determine its likelihood of occurring. However, it is rarely the case that this is practical or even possible. Think of trying to investigate *every* case of someone who smokes against the occurrence of lung cancer; it is simply beyond our scope.

So academic inquiry based in probabilistic logic needs to select observations that can be rationalized as representative of the whole. This feature of probabilistic logic brings the methodological issue of selection bias to the foreground of debate, for it is no easy task to select a sample that represents the full scope of observations. In this light the ubiquitous advice that the easiest way to avoid selection bias and increase the leverage of a causal explanation is to increase the number of observations in the regression seems common sense.⁹ With this it is becoming clear then that positivism, probabilism, and regression analysis are the individual pieces of what is more commonly known as large- n or quantitative research.

The surface level debate between qualitative and quantitative methods is something that all social scientists are familiar with, however it is the ontological and epistemological narrative behind this dyadic debate that we rarely explore. In light of this narrative it is easy to see why those that subscribe to the positivist-probabilist tradition see qualitative approaches as insufficient. How can one or a few cases produce findings that have explanatory leverage to be representative of a larger population? There is simply not enough variation in the sample to draw meaningful correlation conclusions. This is known as the small- n problem.

This criticism “is the most conventional view, taught in countless classes on the methodology of social research. It holds that studying a single case yields only one reasonable theoretical outcome, the generation of hypotheses that may be tested in other more numerous cases.”¹⁰ As we will see in the next section there are considerable advantages to the quantitative template but also considerable weaknesses; likewise there

⁹ The best embodiment of this logic and perspective can be found in King, Keohane, and Verba’s *Designing Social Inquiry*, often known by the monikers KKV or DSI, a contemporary work rivaled by few for its far reaching influence in academia today.

¹⁰ Rueschmeyer (2003) p. 305

are many reasons why a qualitative ontological, epistemological, and methodological narrative may be preferable in some cases.

Let us not lose track of the reason we are exploring these narratives; the feasibility thesis. Speaking in generalities we can now see the greed versus grievance discourse as an extension of the quantitative (large-*n*) versus qualitative (small-*n*) discourse. The feasibility thesis's narrative is unquestionably a product of the positivist, probabilist, and regression analysis based quantitative template. The probabilistic logic employed circumvents the problematic issues of adopting the logic of causal determinacy.

In studying something as inherently complex and rich in contextual elements as the causes of civil war it is a daunting task to decipher a deterministic causal statement along the lines of when (*x*) occurs, (*y*) (civil war) will follow. Indeed, "many argue that major political events are generated by causal processes that are so complex or context dependent that they cannot be explicated in general terms."¹¹ In this regard greed-based approaches, the feasibility thesis being the spearhead, are extremely adept at identifying cross-case relationships between variables in these complex contexts.

However, as we have argued in the previous chapter the feasibility thesis's findings do not always match observable reality and can risk discounting the human experience. Findings from empirical data must reflect reality and we must take seriously the logical truism that correlation does not denote causation.¹² In light of the ontological, epistemological, and methodological character of the feasibility thesis, what would a critical response at each level look like?

A Critical Response: Realism, Determinism, and Process Tracing

The 20th Century would see repeated criticism of the positivist model of empirical discovery. One of the main areas of concern was the far-reaching implication that positivisms picture of science had on what the fundamental nature of the world must be like (ontology). Also closely related was how positivism accounted for change in the sciences. The problem is this: if positivism holds that empirical observation is the only

¹¹ Hall (2003) p. 388

¹² Ibid, Skocpol (2003)

way to gain knowledge then how do we explain when our observations lead us to conclusions that we later find to be false? Essentially, if we cannot distinguish a correct observation from an incorrect observation, then how do we ever actually know anything as true?

If we chalk this up to measurement or observer error this may get us out of some cases, but what about in cases when there is no error in observation but rather interpretation? So is this perhaps a perceptual or theoretical misunderstanding then? But positivism's empiricist standards do not allow for this division between observation and interpretation; there is no division between the 'true' world and our scientific understanding of that world; *observation is reality*. Because positivism sees our theoretical interpretation of observations as a singular logical result of those observations it leaves no room for a logically consistent revision of theory.

This was the point that central figures in the philosophy of science like Karl Popper and Thomas Kuhn faced head on. No one contends that when Einstein showed Newtonian physics to be an inaccurate interpretation of objective observations, and perhaps later Schrödinger and Bohr's criticisms of Einstein's work too, that the real laws and structures of the world changed, just that our interpretation did. But this is exactly what the empiricist logic of early positivism implies.¹³ Indeed, the fact that we can logically reason about questions of ontology and epistemology, which are not necessarily based in empirical observation, suggests there must be other ways to gain scientific knowledge.¹⁴ While it is indeed possible to ignore these implications and carry on with business as usual, and many did and do, what is more useful is to logically address the problem.

Critical realism is an ontological-epistemological tradition that has paid specific attention to this paradox of the sciences. Realism "asks explicitly what the world must be like for science to be possible," while "classical philosophy asked merely what science

¹³ To be fair an extended footnote is due here. While it is true that in the 19th Century positivism and empiricism were overlapping logics today they are largely divorced. Indeed, few hold the idea that atheoretical observation is the only way to truly build knowledge today. In fact, many shy away from the positivist label, as it has mistakenly become a term of abuse. Having this discussion in a way that focuses on outdated conceptions of positivism, while not an accurate depiction of the current state of positivist thought - which primarily stresses scientific method, is useful because it displays the flawed logic that some of its most prolific and commonly employed tools were built on; namely regression analysis. We will make a more nuanced discussion of ontological versus complexity induced probabilism in Chapter Four.

¹⁴ Freedman (2010)

would have to be like for the knowledge it yielded to be justified.”¹⁵ Roy Bhaskar’s *A Realist Theory of Science* is perhaps the most focused effort to answer the question of what the world must be like for science to be possible.¹⁶ Bhaskar contends that the mere idea of perceptual misinterpretation of observations implies that there is something separates from science to be perceived. That is to say that if there is an intransitive (unchanging) world of causal regularities out there to be discovered, then there is a distinction to be made between this world and our transitive (changing) world of scientific understanding.

Science is a social human process that occurs independent of the real causal structures and mechanisms of the world. Bhaskar gives a good example in saying: “Much scientific research has in fact the same logical character as detection. In a piece of criminal detection, the detective knows that a crime has been committed and some facts about it but he does not know, or at least cannot yet prove, the identity of the criminal.”¹⁷ Much to the like, if there is an unchanging world of structures and mechanisms that cause civil war, then our understanding of those forces is an unfolding detective process. All of the perspectives offered in Chapter One are but clues in the puzzle of the causes of civil war. We cannot yet prove the culprit, but we are in the detective process.

Bhaskar eloquently ties this distinction between the intransitive and transitive world to another division between “the *real* structures and mechanisms of the world [intransitive] and the *actual* patterns of events that they generate [the observations we perceive in the transitive world of science].”¹⁸ When Newton saw the apple fall from the tree he did not see gravity, but the regularity that gravity produces. What implications does this division have for scientific discovery? Most all will agree that gravity is a real and unchanging structure of the world; but how do we study something like gravity that is not the consistent regularities it produces, rather something separate?

Indeed, the real structures and mechanisms behind the observations are the things that the sciences, especially the social sciences, are interested in discovering. This division is less intuitive. However, it carries heavy implications for our methods of

¹⁵ Bhaskar (2008) p. 43

¹⁶ Ibid

¹⁷ Bhaskar (2008) p. 39

¹⁸ Ibid, p. 46 Brackets added.

scientific discovery. This is particularly true in regard to regression analysis. Essentially, "... correlational analysis relies on the questionable assumption that causation exists only to the degree that empirical regularities also exist. In other words, correlational analysts implicitly assume that if there is no empirical regularity, there is no causation, or at least causal forces cannot be identified without such regularities."¹⁹

This is an important element of regression analysis to understand because, as mentioned earlier, so much of what the social sciences are interested in studying are those things that are *unobservable*. How do you observe the plethora of social, psychological, and political causal forces (and their interaction) that influence the occurrence of civil war? The way that regression analysis tries to get around the problem of observing unobservables is often by using proxies, observations that while not a direct effect of a causal mechanism are meant to be representative of that mechanism or structure, to build correlations. As we discussed in Chapter One, this creates numerous interpretive issues. For example, Collier and Hoeffler, in their original greed and grievance paper, used male secondary education enrollment, *per capita* income, and *per capita* income growth as proxies for "earnings foregone in rebellion" as part of their argument in showing that as potential economic losses go up, the likelihood of violent rebellion goes down.²⁰

However, though these proxy observations may hold meaningful correlation relationships to incidents of civil war, they *are not* observations of the purposed causal force. Indeed the choice to use these observations seems theoretically arbitrary. Causal forces *are not* the observable regularities that they produce, and furthermore, even if they were why should we think these proxy observations are representative either? This points out another paradox of the positivist-probabilist-regression tradition. Eminent statistician David Freedman is worth quoting in length here as he poignantly summarizes:

Indeed, causal arguments based on significance tests and regression are almost necessarily circular. To derive a regression model, we need an elaborate theory that specifies the variables in the system, their causal interconnections, the functional form of the relationships, and the statistical properties of the error terms- independence, exogeneity, etc. (The stochastics may not matter for descriptive purposes, but they are

¹⁹ Mahoney (2001) p. 557

²⁰ Collier and Hoeffler (2004) p. 588

crucial for significance tests.) *Given the model*, least squares and its variants can be used to estimate parameters and to decide whether or not these are zero. However, the model cannot in general be regarded as given, because current social science theory does not provide the requisite level of technical detail for deriving specifications... Without the right kind of theory, or reasonable empirical validation, the conclusions drawn from the models must be quite suspect.²¹

What Freedman is pointing out is that regression analysis must take a theory, or set of assumptions, about the structure of the relationships between variables (perhaps some of them proxy variables) as a given in order to then substantiate that theory. In cases where this theory is well-established regression analysis can play a vital role in confirming, refuting, or explicating specific nuance of the theory. However, in cases lacking theory, or having underdeveloped theory, the technical assumptions that regression analysis must make become arbitrary impositions. In much of the social sciences the theories we do have cannot specify the technical details of causation at a level that is necessitated in regression analysis. In these cases regression analysis assumes what must be proved.²²

In regard to the feasibility thesis it seems that we must assume the causal structure of economic rationale in motivating civil war in order to prove this relationship, and rule out others. The feasibility thesis justifies its parameter of focused attention on greed rather than grievance variables by appealing to Collier and Hoeffler's 2004 regression analysis on greed vs. grievance, which in turn justifies some of its parameters based on their 1998 regression on economic incentives for civil war. It seems that the justifications for the parameters in each regression analysis are based in the findings of a previous regression analysis. But where does theory and attention to case level reality come in? A cynic might liken parameter justifications of the feasibility thesis to an infinite regress of regression analyses. What is clear is that "If... we choose a group of social phenomena with no antecedent knowledge of the causation or absence of causation among them, then the calculation of correlation coefficients, total or partial will not advance us a step towards evaluating the importance of the causes at work"²³

²¹ Freedman (2010) p. 46-47

²² Ibid

²³ Fisher (1958) p. 190

Proponents of regression analysis may find this accusation of circular logic from the realism-determinism tradition hypocritical, citing that its core method, process tracing, is similarly circular in its efforts to build theory and verify that theory from the same data. Is this circular logic present? Bhaskar gives an instructive example from the natural sciences citing that when the first accurate mechanical clock was built it “was only by basing it on the new dynamics (the very dynamics it was designed to vindicate) and in particular the theory of the isochronous curve of the pendulum.”²⁴ For prior to this innovation there was no observation to prove the theory. What this example highlights is the problem of the probabilistic logic employed in regression analysis. Let’s hypothetically suppose that the theory of the isochronous curve adopts a probabilistic model of causation, then whether the outcome of interest, the clock functioning or not, occurs is only partially relevant. If the clock does not work, it does not disprove the theory, it is only anomalous in a larger trend of clocks that follow the theory and clocks that do not. By not paying specific attention to these potentially counterfactual cases this hypothetical theory, as well as in the feasibility thesis, logically loses much of its explanatory leverage; its theoretical foundation becoming unreliable. Real world causal structures do not exist in a probabilistic form.²⁵ Good theory in the natural sciences makes predictions about what *must* happen rather than what *might* happen. If we as social science researchers wish to mirror the rigor of the natural sciences we must match its deterministic logic.

In contrast to probabilistic causation, deterministic causation has no random elements and ‘posits an invariant relationship between cause and effect.’²⁶ In statistics this determinism refers to a deliberate regression design with an error term of zero, however in the logic of general inquiry it more commonly refers to models of necessary and sufficient conditions.²⁷ A necessary causal condition is one that *must* be present for the outcome of interest to occur, but it does not imply the presence of the outcome by

²⁴ Bhaskar (2008) p. 55

²⁵ In spite of this argumentation it does appear that certain phenomena in the natural sciences *do* appear to operate in a probabilistic fashion, this is particularly true in areas of quantum mechanics. However, one could also argue that it is merely that our theoretical understanding of these phenomena have not reached a level that can see past their seemingly probabilistic nature. The idea of complexity induced probabilism will be discussed further in Chapter Four.

²⁶ Brady and Collier (2010) p. 326

²⁷ *Ibid*, p. 145

itself. In contrast, a sufficient condition does not have to be present for the outcome to occur, but when it is present the outcome *must* occur.²⁸ This is in contrast to regression analysis, which depends on a probabilistic logic that has its origins in the positivist tradition; attempting to replicate closed-system experimentation.

But the social world is not the closed-system of a controlled experiment, rather open, so why should our academic exploration best proceed as if it is? What adopting a deterministic model of causation, focusing on necessary and sufficient conditions, offers is a stricter standard of causation that demands the meticulous examination of specific cases and attention to context for developing causal explanations. Through this inductive approach to science we have a much closer relationship with observations and can more reliably build the theory to connect observations; delving into the so called ‘black-box’.²⁹ Again, a lengthy quote is appropriate as Mahoney outlines the core of this argument succinctly.

If investigators lack knowledge of actual instances of the phenomena of interest, they are unlikely to make good decisions about how to conceptualize the mechanisms that generate these phenomena. Likewise, contrary to what is sometimes asserted, scientists do not formulate mechanisms purely or primarily through deductive analysis; rather, they employ what sociologists call “analytic induction” to accomplish this task. Thus, should social scientists seek to replicate the kind of theory-building employed in the natural sciences, they must postulate causal mechanisms based on intensive examinations of particular cases. Furthermore, they must in part work backward from the observed outcome to the theoretical mechanism in question.³⁰

In light of the above perspectives, reflecting loosely on the feasibility thesis we will observe that opportunity for economic gain can neither be argued as a necessary or sufficient condition for violent intrastate rebellion, as the feasibility thesis’s own regression data shows that feasibility’s components are neither invariably present or

²⁸ In both definitions of necessary and sufficient conditions given here we can speak in the alternative terms more friendly to a statistician. Simply replace ‘condition’ with ‘independent variable’ and ‘outcome’ with ‘dependant variable’. We will revisit necessary and sufficient conditions in greater length in Chapter Four.

²⁹ The logic and problems of inductive reasoning is relevant to mention here, however beyond the scope of this piece. For those without a basic understanding of the problem of induction the classic piece is Hume (1990)[1748]. In more contemporary philosophy Popper (2004)[1959] and (2004)[1963] are central.

³⁰ Mahoney (2001) p. 591

absent in relation to the occurrence of civil war. How can the feasibility thesis make a statement of causal sufficiency, “that where a rebellion is feasible it will occur,” when its findings are based in a probabilistic logic that ignores all notions of deterministic causation? This is a major logical inconsistency in the feasibility thesis.

Proponents of the feasibility thesis may argue that it is precisely the creation of an overarching concept, feasibility, which allows the thesis to make statements of causal sufficiency.³¹ However, as we have explicated above, and in the example of Mexico’s drug wars, the quantitative boundaries of the concept of feasibility can be considered an arbitrary choice, as they have no grounding in substantive theory and thus no reliable predictive or thorough postdictive ability. The logic used to justify the concept of feasibility presumes its bounds before the fact. The feasibility thesis is a prime example of the circular logic that Freedman outlined earlier.

If our goal is to understand the contents of the black box of causality between independent and dependent variables then we have to adopt a useful understanding of what a causal mechanism looks like.³² To regression analysis causal mechanisms are often understood as intervening variables that provide a stepping stone for explaining correlations between independent and dependent variables.³³ However, this conceptualization of causal mechanisms does not escape Freedman’s circular logic as it essentially uses one correlation to explain another. Likewise one can question if classifying a variable as independent or intervening is again an arbitrary choice. In studying the causes of social phenomena that have a multitude of interwoven variables, such as civil war, these problems are only exacerbated by the complexity.

Alternatively, adopting a perspective consistent with the realism-determinism tradition will prove useful. Thus: “... a causal mechanism is an unobserved entity that-when activated- generates an outcome of interest.”³⁴ This definition is consistent with the logic of necessary and sufficient conditions as it stresses that the activation of a mechanism is *sufficient* to produce the outcome of interest. This definition is also consistent with the realist division between the transitive and intransitive world, as it

³¹ In this formation the individual variables in the feasibility take on an INUS causal structure. This is a point we will develop further in Chapter Four.

³² Mechanisms are only discussed in brief here but are given more lengthy discussion in Chapter Three.

³³ George and Bennett (2005), Hedström and Swedberg (1998), King *et al* (1994), Mahoney (2001)

³⁴ Mahoney (2001) p. 580

focuses on mechanisms as unobservable and distinct from the observations that allow us to identify them. The logic of this definition is indeed analogous to theories from the natural sciences, such as models of string theory; particle theory and etc, in that a mechanism's utility is not as a variable that explains variation in outcomes, but rather the *actual* mechanisms that physically generate outcomes in the natural world.³⁵ Thus “we are not satisfied with merely establishing systematic covariation between variables or events; a satisfactory explanation requires that we are also able to specify the social ‘cogs and wheels’ that have brought the relationship into existence.”³⁶ But if not regression analysis, what methods does the realism-determinism tradition offer?

Process tracing, though only one tool in the arsenal of case-study methods employed by small-*n* researchers, can be considered the methodological core embodiment of the realism-determinism tradition. “The process-tracing method attempts to identify the intervening causal processes- the causal chain and causal mechanism – between an independent variable (or variables) and the outcome of the dependent variable.”³⁷ Process tracing can take multiple shapes, but all involve creating a narrative of causation in the given case(s).³⁸ These narratives can be merely descriptive, in that they focus on the analytical evaluation of a case in light of a specific theory; though, good process tracing focuses on building transferable generalizations about the structures of causation occurring across cases. Tilly characterizes process tracing as the construction of “relevant, verifiable causal stories resting in differing chains of cause-effect relations whose efficacy can be demonstrated independently of those stories.”³⁹ It is this focus on theorizing about causal structures, in a way that can be transferred to other cases, that distinguishes process tracing from atheoretical historical explanation.

Indeed, good process tracing is rigorous in that it that it selects a suitable beginning and end to its narrative, has no breaks in that narrative, makes predictions about what we should expect to find, highlights observations inconsistent with other

³⁵ Ibid, Musgrave (1985)

³⁶ Boudon (1998) p. 7

³⁷ George and Bennett (2005) p. 206

³⁸ For classic examples of process tracing we can look to the theories of Marx and Weber, though perhaps E.P. Thomson's (1963) *The making of the English Working Class* is the best example. Prominent contemporary examples that more explicitly use process tracing are Collier & Collier (1991), Mahoney (2001b), and Skocpol (1979). For examples explicitly dealing with peace and conflict studies see Evanelista (1999), Khong (1992), and Sagan (1993).

³⁹ Tilly (1997) p. 48

accounts, and guards against confirmation bias.⁴⁰ In this regard process tracing is an invaluable tool for theorizing about and testing the actual unobservable causal mechanisms that operate “... in a world marked by multiple interaction effects, where it is difficult to explain outcomes in terms of two or three independent variables- precisely the world that more and more social scientists believe we confront.”⁴¹

In the world of greed and grievance discourse David Keen’s superb case-study of civil war in Sierra Leone is a perfect example of process tracing.⁴² Keen outlines in detail, and with thoughtful analysis, the many psychological, social, political, and economic processes that started and sustained civil war in Sierra Leone and the implications these hold in future reconciliation, peace building, and development processes.

What we have seen thus far is an elaboration of the positivism- probabilism- regression based paradigm of the feasibility thesis, and a critical response in the realism – determinism- process tracing paradigm. Making the distinct origins of these traditions explicit may drive some to dig in their heels and hold tight to one perspective, as is typical in the greed and grievance discourse and academia as a whole. However, those who do so miss the opportunity before them. Both forms of inquiry, and many more, are valid. Thus our opportunity is a calculated application of the strengths of multiple approaches, dodging weaknesses where possible, that can provide an even more diverse and developed understanding of the world around us; or more specifically in our case, of the causes of civil war. Both quantitative and qualitative approaches have valid findings and advice for each other. Understanding this balance is an important step towards a fruitful pluralism.

Trade-Offs Between Large-*n* and Small-*n* Approaches in Scientific Inquiry

Thus far we have largely argued that small-*n* analyses have distinct strengths in scientific inquiry. Small-*n* analyses are invaluable for developing theory, however less intuitively, they can also serve as the observational field for testing theoretical

⁴⁰ Bennett and Elman (2006)

⁴¹ Hall (2003) p. 378

⁴² Keen (1998)

propositions and producing persuasive causal accounts. However the statistician's "skepticism about this claim rests ultimately on the mistaken identification of a single case with a single observation. Good historical analysis that is analytically oriented goes through frequent iterations of confronting explanatory propositions with many data points."⁴³ Thus small-*n* analysis exhibits two significant advantages over all but the most exceptionally designed quantitative research. First, small-*n* analysis allows a more direct and frequently repeated interplay between theory development and data analysis. Second, small-*n* analysis allows for a closer matching of conceptual design and evidence.⁴⁴

In spite of this it is essential that qualitative practitioners are well informed on statistical principles of research design, as they remain relevant in all fields and approaches. For example, while parts of small-*n* analysis get around the issue of increasing causal leverage by upping the number of cases in an analysis, other truisms hold fast. It is only when we begin to compare outside the first case that the impact of elements that may have been held constant, and thus invisible, become plain to see. Moving beyond the first case can serve as a powerful hypothesis confirmation, modification or falsifying technique.

Indeed, we have aimed much criticism at the large-*n* quantitative template for its "fascination, if not obsession, with statistical models and concerns, and a neglect of the need to develop sociological models mirroring conceptions of mechanisms of social processes."⁴⁵ However, similar criticism can be aimed in the opposite direction at small-*n* analysis. Despite the problems we have outlined with regression based quantitative analysis for conceptualizing causation we must keep in mind that these approaches do produce meaningful and convincing findings on a regular basis.⁴⁶ Hence we can likewise point criticism at the small-*n* practitioner: "Social theorists are often so concerned with their concepts and frameworks that they pay little attention to the findings of quantitative sociology; as a result, social theorists forfeit powerful evidence that could be used to adjudicate among rival theoretical frameworks."⁴⁷

⁴³ Rueschemeyer (2003) p. 318

⁴⁴ Ibid

⁴⁵ Sørensen (1998) p. 238-9

⁴⁶ Mahoney (2001)

⁴⁷ Ibid, p. 582

It is one thing to dispel myths about small-*n* analysis, but yet another completely to “claim that it encounters few or no serious methodological problems.”⁴⁸ Perhaps the most central point of methodological debate between qualitative and quantitative approaches to inquiry revolves around selection bias. As we have outlined above, regression analysis is based in a probabilistic logic of causation. Freedman refers to this strategy as the “as-if” approach to reasoning, that is to say that we must use a sample of data “as-if” it is representational of the imagined complete sample of all relevant data.⁴⁹ With this in mind the importance of picking the right data becomes paramount. We do not want to *select* data that will *bias* our findings. The primary way in which these biases emerge is through truncating our sample based on independent and dependent variables.⁵⁰

For example, if we are to build a representational average of the effects of economic factors on the outcome of civil war it makes sense not only to include cases where the independent (causes) and dependent (outcome) variables are both present but also those cases in which only one of either the dependent or independent variables is present. Without specifically taking steps to seek variance on the independent and dependent variables the findings from a regression will be potentially over-representational of a biased set of observations.⁵¹ In this regard the feasibility thesis is commendable for thoroughly seeking variation in its dataset.

With these standards in mind some harsh criticisms of qualitative analysis, especially single case analysis, can be better understood. Indeed, it looks as if the analysis of a single case in which the cause (independent variable) and the outcome of interest (dependent variable) both occur is the ultimate truncation. However, such criticism hinges on the probabilistic model of causal analysis. If instead we adopt a deterministic model with the goal of evaluating necessary and sufficient conditions, as opposed to a representational average, these criticisms will in part fail. After all, the tests for assessing the presence of necessary conditions exist wholly in cases in which the outcome of interest (dependent variable) actually occurs. Likewise, presence of sufficient conditions

⁴⁸ Rueschemeyer (2003) p. 324

⁴⁹ Freedman (2010) See specifically Chapter Two.

⁵⁰ King *et al* (1994). King *et al* also include truncating on the error term as part of the interplay in factors that can lead to selection bias, however this will not be included in our discussion here.

⁵¹ It is worth noting that Bennett and Elman (2006) p. 463 also point out that, if taken to a logical extreme, there is such a thing as too much variation in a sample. “The inclusion of irrelevant or impossible cases in a statistical study can make a false or weak theory appear stronger than it actually is.”

exists wholly within specific configurations of causes (independent variables).⁵² Whether atypical cases are over-represented in this regard is irrelevant because *all cases must fit the proposed causal explanation*. We will explore this point in further detail in Chapter Four.

However the quantitative criticism does hold true in relation to seeking variance on the cause (independent variable) of phenomena. Cases in which the outcome is present but the proposed cause is not can provide powerful counterfactual evidence that should not be ignored. In this regard some of quantitative reasoning's suggestions for qualitative approaches, to increase causal leverage by increasing the number of cases, are correct, though not entirely for the reasons that quantitative logic suggests. Furthermore, this advice can be hard to follow in topics where there are very few cases of a observed outcome. Trying to increase the *n* in spite of this can lead to the inclusion of irrelevant cases and distort findings.⁵³

While there are issues that qualitative approaches must understand, the same is most certainly true *vice versa*. In this vein measurement is a related point. Just as an unrepresentative sample can distort our conclusions about the whole population, a poorly conceived measurement of that sample can distort likewise.⁵⁴ A wealth of literature from the fields of psychometric reasoning and mathematical measurement theory suggest that: "Successful measurement always depends on having a well-developed understanding of the concept we want to measure, and efforts at conceptualization and measurement routinely need to tackle theoretical concepts..."⁵⁵

For example, simple monivariate elements of the feasibility thesis are more theory laden than one might think at first glance. How we define civil war is enormously important for how we will measure it and in turn what results our study will yield. The feasibility thesis relies on a definition of civil war as intrastate conflicts having 1,000 or more battlefield deaths a year. This is an arbitrary place to define the bottom limit of civil war. Kaldor points out that in modern civil wars combatant (battlefield) to civilian death

⁵² Bennett and Elman (2006), Collier *et al* (2010) Ragin (2000)(2008)

⁵³ Brady and Collier (2010)

⁵⁴ Ibid

⁵⁵ Ibid p. 134

ratios in civil war are have basically inverted.⁵⁶ Thus, are *battlefield* deaths an appropriate way to set the baseline for what is or is not a civil war? While perhaps this measurement specification is taken to rule out genocide etc it is clear that its uniform application without attention to specific cases may yield misleading results, perhaps under-scaling the size of some civil wars.

As discussed in Chapter One, a key problem in the feasibility thesis is that it conceptualizes civil war as between the state and a group of rebels; discounting the plethora of other civil war formations that occur. Ultimately, ignoring typological distinctions in occurrences of civil war may point out issues of assuming unit homogeneity, a point we will return to in Chapter Four. As our examples and specific examination of the case of the drug wars in Mexico show, this depiction is not always useful when confronting the reality of civil wars. There are two criticisms of measurement aimed at the feasibility thesis here. First, if a case like the drug wars in Mexico meets the requirements to be quantified in the feasibility thesis's dataset, why is it not included?

Second, if the feasibility thesis conceptualizes civil war as between governments and rebels, then why are *all* cases of civil war, even many where this dyad is not present, used in the dataset to justify its maxims? The feasibility thesis ignores the notion that "theory and measurement validity are mutually dependent."⁵⁷ The feasibility thesis takes these steps not as an outlier in quantitative studies, but rather as typical in its mistake of putting that cart before the horse. This is similar to the circular logic outlined earlier in this chapter. It is clear that quantitative methods must head to the advice of qualitative templates in this matter by being attentive to typological diversity.

These are but a few of the weighted considerations that a researcher must take into account when designing a research project. Choosing between quantitative and qualitative methods is often about finding a balance between generality vs. precision, avoiding bias vs. maintaining causal leverage, random vs. non-random samples, and thus large-*n* vs. small-*n* research design.⁵⁸ Sometimes a large-*n* research design with technical

⁵⁶ Kaldor (1999)

⁵⁷ Brady and Collier (2010) p. 137

⁵⁸ Ibid

solutions can lend powerful findings to the discourse and is indeed more appropriate for investigating a given topic.

However, “Regression modeling is a dominant paradigm, and many investigators seem to consider that any piece of empirical research has to be equivalent to a regression model. Questioning the value of regression is then tantamount to denying the value of data.”⁵⁹ What should be evident thus far in this chapter is that the regression analysis paradigm is far from the only viable way to gain scientific knowledge about the social world, and furthermore is not without its own problems. That being said we can understand the popularity of quantitative approaches as they are highly analytical, fairly transparent in their procedure, and decisive in their findings. However, overextending the logic and tools of quantitative analysis, as in the feasibility thesis is a mistake, as Freedman summarizes.

Naturally, there is a desire to substitute intellectual capital for labor. That is why investigators try to base causal inference on statistical models. The technology is relatively easy to use, and promises to open a wide variety of questions to the research effort. However, the appearance of methodological rigor can be deceptive. The models themselves demand critical scrutiny. Mathematical equations are used to adjust for confounding and other sources of bias. These equations may appear formidably precise, but they typically derive from many somewhat arbitrary choices. Which variables to enter in the regression? What parameters and error terms? These choices are seldom dictated either by data or prior scientific knowledge. That is why judgment is so critical, the opportunity for error so large, the number of successful applications so limited.⁶⁰

The point is not to argue that regression analysis is an inferior tool that should be done away with; on the contrary, it is invaluable. However, utilizing regression analysis to its fullest and most promising ability necessitates explicating exactly what kind of questions it can address and what kind of answers it can give. Generally speaking, quantitative approaches are adept at answering forward-looking questions, that is questions that evaluate the effects of causes. If we want to have a general understanding

⁵⁹ Freedman (2010) p. 46

⁶⁰ Ibid. p. xiv

of the net effects of a permissive economic environment for the chances of rebellion, regression analysis is indeed an adept tool.

However, if we want to understand a backward-looking question, one concerned with the causes of effects (causes of civil war), regression analysis will be insufficient as a stand-alone approach.⁶¹ While a forward-looking question gives us a starting point (independent variable) and an end point (dependent variable) to our study, a backward looking question only gives us a solid end point, and thus exponentially multiplies the number of possible causal explanations that lead to that phenomenon.. In asking backwards-looking questions we cannot rely on more technical solutions, but rather the hard labor of logically reasoning about causes through case-study techniques such as process tracing. Explicating these differences is important for encouraging well thought out research, as blindly adhering to one methodological tradition will limit the types of questions we can ask and discourage creative solutions.⁶²

This chapter serves as a critic of the quantitative paradigm from the perspective of qualitative approaches, focusing specifically on the many differences between these two traditions. However, as in the parallel greed and grievance discourse, focusing on differences in perspectives may extend the trenches further and discourage an eclectic view of methodology. For all the differences these two traditions exhibit, there is one key similarity that they hold. Though through different means, both traditions address seriously the goal of increasing leverage in causal and descriptive inference.⁶³ It is this shared goal in the collective expansion and scientific exploration of knowledge that should incite scholars not to “...degenerate into a congeries of rival sects and specialized researchers who will learn more and more about less and less.”⁶⁴ What this key insight should suggest is that weighted application of tools and a dedication to a coherent pluralistic approach to scientific inquiry can yield the most powerful results. We should welcome more weapons into our methodological arsenal rather than fewer.

⁶¹ For a very good piece on the idea of forward vs. backward looking research designs and their implications see Scharpf (1997).

⁶² Brady and Collier (2010)

⁶³ Ibid

⁶⁴ Skocpol (2003) p. 411

Pluralism: The Path Forward

There is a common misconception that seeking pluralistic approaches to inquiry means developing a singular standard by which to evaluate all scientific findings. This view would suggest that we should attempt to synthesize the strengths and weaknesses of the quantitative and qualitative traditions into a singular standard. However, what this piece makes evident is that the quantitative and qualitative paradigms are not merely at odds in their methods, but have their roots in very distinct epistemological and ontological traditions. The prospect of reconciling these deep-seated differences is unlikely. What this dramatic distinction between paradigms should suggest is that pluralism should be a focus on “how different qualitative and quantitative tools can be used together in ways that preserve their respective strengths while overcoming their respective limitations.”⁶⁵ Quantitative and qualitative paradigms and their respective tools are designed to do very different things. Recognizing this allows us to focus on gaining insight from both.⁶⁶

Qualitative research can play an important part in supplementing quantitative findings. Lieberman has made significant contributions to this end of pluralism with his method of “nested analysis” in which a preliminary regression is then followed with a small-*n* analysis to refine the specifications of the original regression model.⁶⁷ Similarly, Gerring elaborates an extended typology of case-studies that can be selected from a regression for testing along the lines of Lieberman’s nested analysis. If we consider the feasibility thesis as the preliminary regression in a nested analysis, what does a small-*n* analysis of its cases reveal? While many will agree that a permissive economic environment is part of the causal cocktail that drives civil war, we are not aware of *any* case study, from before or after the feasibility thesis, that suggests it as the key causally

⁶⁵ Mahoney (2010) p. 139. Bennett and Elman (2006) as well as Brady and Collier (2010) also support this perspective.

⁶⁶ Freedman (2010) and Mahoney (2010) both spend time in explicating the value of quantitative data-set-observations (DSO’s) vs. qualitative causal-process-observations (CPO’s), a distinction that helps navigate the world of pluralistic approaches.

⁶⁷ Lieberman (2005)

determinate element.⁶⁸ Should this not serve as a crucial piece of evidence to suggest that the feasibility thesis should revise its parameters, specifically the variables it includes in its dataset, in going forward?

Inversely, quantitative research can also supplement qualitative research. The traditional formulation of this combination is that qualitative research develops a theory and the quantitative analysis tests it.⁶⁹ This conception is appealing because a good case study can theoretically break the circular logic of regression analysis outlined earlier. However, Mahoney argues that we “need not assume this strict division of labor.”⁷⁰ It is plausible that theory building and testing can take place at each step. A case-study can both establish and test a theory through process tracing, which can then later be tested in a regression that suggests modifications to the theory.⁷¹ Theory from a case study can also be extrapolated for generalization of the observable implications of a theory. Similar to the criticism above, why hasn’t the feasibility thesis drawn on the wealth of valid small-*n* knowledge about the causes of civil war in designing the parameters of its regression?⁷²

While there are many opportunities for triangulating our findings through combining qualitative and quantitative approaches there are also those methods that are a distinct synthesis of the logics of both paradigms. Perhaps the most interesting avenue in this regard is fuzzy-set analysis. In fuzzy-set analysis researchers must use qualitative knowledge of a case to rate the ‘degrees of membership’ for the independent and dependent variables in a quantitative value. These values can then be plotted against each other in a unique combination of probabilistic and deterministic logic, accounting for both variation as well as necessary and sufficient conditions. The types of statements this analysis makes are unique in that they assert causes as probabilistically necessary or sufficient. Fuzzy-set analysis is one of the most promising innovations in bridging the gap between quantitative and qualitative approaches in the social sciences and will be the

⁶⁸ Indeed there is a plethora of small-*n* academia that has analyzed most of the cases in the feasibility thesis’s dataset.

⁶⁹ Mahoney (2010) surmises Lijphart’s (1971) argument along these lines well.

⁷⁰ Mahoney (2010) p. 142

⁷¹ Ibid, George and Bennett (2005).

⁷² Keen (2008) poses this question as well.

central focus of Chapter Four. In the study of the causes of civil war and the social sciences as a whole fuzzy-set analysis is an exiting new tool.

What is clear is that qualitative and quantitative researchers need to, and indeed do, rely on each other for triangulating a full and complete scientific finding.⁷³ “Researchers who rely on observational data need qualitative and quantitative evidence, including case studies. They also need to be mindful of statistical principles and alert to anomalies, which can suggest sharp research questions. No single tool is best: They must find a combination suited to the particulars of the problem.”⁷⁴ Producing good scientific work is no easy task. We must be diligent in our decisions and explicit in our findings. Most of all we must be ready to take seriously refutation from other scientific traditions. To ignore critical findings is to ignore a wealth of valuable data that can push the collective “scholarly enterprise of knowledge accumulation steadily forward.”⁷⁵

Refocusing On The Feasibility Thesis: Explicating Faults And The Way Forward.

The point of this discussion is not to suggest that we should do away with the feasibility thesis’s findings. Understanding the role of an economically permissive environment is an invaluable addition to our understanding of the causes of civil war. Rather our point is to critically focus on just what exactly the regression analysis behind the feasibility thesis is capable of telling us. We agree strongly with the notion that: “Credible causal inferences cannot be made from a regression analysis alone... A good overall fit does not demonstrate that a causal model is correct...”⁷⁶ In this regard the central maxim of causal sufficiency that the feasibility thesis posits, that “where rebellion is financially and militarily feasible it will occur”, is a clear overextension of the probabilistic logic that is the foundation of its regression analysis.⁷⁷

With this in mind we see four main criticisms of the feasibility thesis’s research design that are typical of all but the most exceptionally thought out regressions. First, by ignoring much of the wealth of qualitative findings, both greed and grievance-based, the

⁷³ Ibid, Brady and Collier (2010)

⁷⁴ Freedman (2010) p. xv

⁷⁵ Skocpol (2003) p. 417

⁷⁶ Brady and Collier (2010) p 6

⁷⁷ Collier *et al* (2009)

feasibility thesis dulls its research questions and findings. Well-developed qualitative findings can provide the basis for nuance and revision in the research questions asked, the variables included, the parameters employed, and the findings produced. Ignoring this valuable pot of information seems an unjustifiable stance. The truism holds that corollary indeterminacy is not the same as causal irrelevance.

Second, The feasibility thesis has considerable problems quantifying complex concepts. The feasibility thesis makes extensive use of proxies and clusters of proxies to represent difficult to quantify concepts. As we exemplified earlier, there are considerable difficulties in quantifying concepts like ‘earnings forgone in rebellion’. While the logic used to justify what proxies should represent is intuitive, it is not however based in any empirical or theoretical foundation. We cannot see the selection of proxies as anything but an arbitrary choice, which could be mitigated against by looking to qualitative cases and performing thorough preliminary regression studies.

Similarly, the third point is that the feasibility thesis has a questionable justification for what variables it includes and excludes from its regression. The feasibility thesis justifies excluding variables of grievance by appealing to a previous regression (Collier and Hoeffler 2004), which suffers from many of the same problems of proxies and variable inclusion present in the feasibility thesis. This can be characterized as conceptually similar to the idea of an infinite regress.

Fourth, the criticisms thus far hold true for the other functional parameters of feasibility’s regression. Why, for example, should we use a dataset on the occurrence of civil war with almost no typological distinction between different formations of civil war to justify a very specific conception of civil war as between a rebel group and the state? This step may inflate the feasibility thesis’s findings.

Conceptualizing the seemingly infinite amount of contextual information that must be included when addressing the causes of civil war is daunting. The feasibility thesis is an important step in understanding this vast swath of data and observations, however it is far from a definitive finding to the core causal force of civil war. This should encourage scholars towards a revision and nuance of the feasibility thesis, as well as other perspectives, through the combination of qualitative and quantitative insights.

A pluralistic approach “is not a formula for methodological anarchy. Rather it is a step toward avoiding anarchic situations where scholars are simply talking past one another.”⁷⁸ Blindly adhering to one tradition is to limit the information available to us. If we wish to tackle questions about what is in the ‘black-box’ we must take seriously the findings of all forms of scientific inquiry. As we will see in Chapter Four, fuzzy-set analysis can play a key role in a methodologically plural study of the causes of civil war that addresses many of the weaknesses in the feasibility thesis.

Thus, now our focus should be on explicating the causal structures and mechanisms behind such contextually complex and multifaceted structures as civil war. It is the exploration of these causal mechanisms in space and time, by both qualitative and quantitative approaches that will serve as the most promising path forward. Chapter Three moves along the lines of explicating a body of emerging theory that pays specific attention to the role of context, mechanisms, and time in causal explanation that will prove invaluable for building a pluralistic research strategy for causes of civil war in Chapter Four.

The feasibility thesis is not a dead-end, but an important step in our exploration. In this regard Freedman’s mature insights are always priceless: “Scientific inquiry is a long and torturous process, with many false starts and blind alleys. Combining qualitative insights and quantitative analysis- and a healthy bit of skepticism- may provide the most secure results.”⁷⁹

⁷⁸ Brady and Collier (2010) p 156

⁷⁹ Freedman (2010) p 352

Chapter Three

Context, Mechanisms, and Time in Civil War

Thus far we have made an in-depth inventory of the multiple levels of discourse surrounding the feasibility thesis. In Chapter One we showed that the feasibility thesis has become situated as the spearhead of greed based explanations for the causes of civil war, and in the process we were able to explicate a critique highlighting a number of continuity gaps in the feasibility framework.

In Chapter Two we explored further the dyadic division between greed- and grievance-based explanations for civil war as reflecting a larger discourse between quantitative and qualitative approaches to scientific inquiry. Our conclusion being that both qualitative and quantitative approaches are distinct and equally valid forms of scientific inquiry when they are rigorous in their method and explicit in their findings. Thus our efforts to understand the causes of civil war should be focused on exploring the causal mechanisms at work and cross-referencing our results from as many distinct perspectives as possible.

Methodological pluralism with explicit attention to causal mechanisms is indeed an effort that has been severely lacking from the study of the causes of civil war. We should not be satisfied that (x) causes, or has a correlation to, (y) but rather our core interest should be *how* (x) causes (y) .¹ Before going on to elaborate an idealized research design based in set-theoretic approaches for exploring the role of context and causal mechanisms in driving civil war in Chapter Four, there are some other important concepts to explore and dissect. If our goal is to theorize about the transferable causal mechanisms that drive civil wars then we must pay explicit attention to the role of context in causation.

As with many objects of study in the social sciences, civil war offers a vast range of contextual complexity and variation.² As we saw in Chapter One, negotiating the vast range of competing theory for explaining the causes of civil war is no easy task. Many theories pay attention to one or a few “contextual layers” that are indeed intuitively

¹ Gerring (2007)

² Keen (2008)

important.³ However, while a narrow focus may be more manageable, it may in turn leave researchers blind to interaction between multiple contextual layers. The role of social, psychological, political, and economic layers are all indeed individually important. However, each of these invaluable insights into the causes of civil war is insufficient as a stand-alone explanation. It is explicating the diverse interaction between the vast arrays of causal contextual layers that is essential in building a holistic understanding of the causal mechanisms of civil war.

Conceptualizing the complex interaction of many layers is indeed a daunting task. The feasibility thesis is attractive in this regard, for it uses technical solutions to model one layer of the intense complexity behind civil war. However, if we are to formulate a useful path forward we need to be able to look at the bigger picture. How can we begin to unravel the various ways in which context and mechanisms interact in causation? We may find clues in other academic traditions. Historical Institutionalism (HI) is a field that has the central focus of causal analysis of institutional continuity and change across time. It is through this explicit focus on causal analysis that HI has proved among the most prolific traditions in developing frameworks for understanding complex contextual causation.⁴ Furthermore HI's attention to the way that time, the most inherent contextual dimension in all causal analysis, affects causation is unique. Though many traditions have an implicit understanding for the way time interacts with causation, few formalize those understandings.⁵ Exploring the way time interacts with causation is an essential jumping off point for discussing the ways in which various contextual layers abrade and collide to create outcomes. In our case the outcome of interest is civil war. All causal analysis has an implicit dimension of temporal analysis; the two go hand in hand.⁶ If we want to understand the complex contextual causes behind civil war, and in turn the operative causal mechanisms, let us begin with time; for time is the dimension across which contextual layers individually develop and collectively interact.

³ I borrow the term “contextual layer” specifically from Falletti and Lynch (2009), although similar discussion can be found in Mahoney and Thelen (2010) as well as Pierson (2004).

⁴ Pierson and Skocpol (2002)

⁵ Pierson (2004)

⁶ Thelen (1999)

Time

In the introduction to his book *Politics in Time*, Paul Pierson makes a clever example to highlight the importance of time and the lack of attention to it in much of the social sciences. Pierson describes visiting an imaginary restaurant called “The Modern Social Scientist” and having an opportunity to visit the kitchen.

The chef proceeds to elaborate her culinary approach: good cooking, she says, amounts to having the perfect ingredients, perfectly measured. Traditional cooks have stressed how important the cooking process itself is, including the sequence, pace, and specific manner in which the ingredients are to be combined. Not so, says the proprietor of The Modern Social Scientist. As long as you have the correct ingredients and they are properly measured, she insists, how, in what order, and for how long they are combined *makes no difference*.⁷

Pierson’s satirical comment on the state of modern social science appeals to our intuitive understanding of the world. Of course issues of timing, sequence and context are essential to good analysis in the social sciences, and indeed for good cooking as well. However, many approaches in the social sciences, especially regression-based analyses, are focused on accurate measurement and correlation of variables. As discussed in Chapter Two, this approach can offer powerful insights, but also has distinct weaknesses. A focus on correlations can leave researchers blind to the effects of *when* variables are combined, in *what order*, and against what *contextual backdrop*.⁸

For example, in Chapter One we briefly delved into arguments about countries with primary commodity export (PCE) led markets being particularly correlated to incidence of civil war. The argument was that as primary commodity dependence went up the more lootable resources were present to fund rebellion, but past a certain point the state revenue from PCE’s were sufficient to fund suppression of rebels. However, while intuitive, this explanation has no temporal dimension.

⁷ Ibid, p. 1

⁸ Though there are regression analyses that explicitly include temporal and spatial subunits in their datasets, using these measures can run the risk of artificially inflating the *n* of otherwise inconclusive studies.

Terry Lynn Karl has written extensively about PCE led markets, in particular oil led markets, crafting powerful temporal accounts of the institutional development that typically occurs after large oil discoveries.⁹ Citing Norway as an example, Karl posits that whether or not oil dependence leads to paths of poor institutional development and in turn potential conflict can depend on whether or not a nation already has substantial democratic and economic institutional structures in place prior to large oil resource discovery. The context of oil discovery in Norway, already an advanced democracy at the time of its massive oil discovery, is completely different from that in a nation with lesser-developed institutions like Somalia, Nigeria, or Angola. In a regression analysis Norway would serve as part of the natural variation of the dataset. The individual data point is never explored for its specific case contribution to a more nuanced understanding of the role of PCE in development and conflict.¹⁰ Karl's arguments point out the importance of sequence and context as dimensions for explanation that could otherwise go unexplored in a regression.

The point is that rather than thinking of causation occurring in a snapshot of variables we must be attentive to the moving picture; indeed multiple overlapping moving processes with their own pace, combining in different sequences, and creating diverse overarching contexts. With this conception in mind the task of formalizing the mechanistic interaction of contextual layers across time in a way that is transferable across cases is paramount.

Path-Dependence

In the effort of formalizing our understanding of the causal mechanisms that operate across time and between cases one concept has emerged as the stepping-stone for exploring epistemological issues in the study of causation in time; this concept is path-dependence.¹¹ Though the idea of path-dependence has reached near faddish use in the

⁹ See Karl (1997)

¹⁰ To be fair, in the Feasibility Thesis PCE reliance alone does not hold a significant correlation to civil war. Only when PCE reliance is conditioned with GDP does it hold correlation to civil war. This theoretically would account for outlying cases like Norway.

¹¹ The line of argument description in this section on path-dependence is based heavily on Pierson (2000)(2004)

social sciences it is none the less the foundation on which many more nuanced frameworks have been built. Exploring path-dependence, and its related frameworks, may seem a digression in our discussion of the causes of civil war, however it is an essential digression in exploring the emerging academic work on context, mechanisms, and time. If we wish to incorporate these elements into our understanding of the causes of civil war we must stay the course. In going forward path-dependence is perhaps best elaborated to those unfamiliar with the concept in three stages, as Pierson does, first through a thought experiment, second in economics, third in politics.

Pierson describes the basic logic of path-dependence through the idealized thought experiment of the Polya urn process: “Imagine a very large urn containing two balls, one black, one red. You [randomly] remove one ball, and then return it to the urn along with an additional ball of the same color. You repeat this process until the urn fills up.”¹² When we take the first draw our odds of picking the black or red ball are even. Let us say we pick the red ball and replace it with another as instructed. Now the odds are 66.66% red, 33.33% black. Say we pick red again, now the odds are 75% red, 25% black, and so on. Quickly the distribution of balls is taking on a stable path. There are several characteristics of this process, and a series where we repeat the process many times, which we can pick out.

First, the outcome of each individual trial is unpredictable for the start. Each of our trials is likely to have a different final distribution of black to red balls. Second, each trail will eventually reach a fairly stable equilibrium. That is to say that eventually the outcome will be more aimed towards a distribution with either more black balls or more red. This points out, thirdly, that early draws in the sequence have a much greater effect than later ones on which equilibrium we will reach.¹³ In our specific imaginary draw sequence it is not impossible to move towards an equilibrium of black balls, however as we can see the odds are already in favor of a red ball equilibrium.

The next step is taking this logic to the study of economics. Economists, most notably Arthur and David, began to adopt the logic of path-dependence as a means for exploring market competition and inefficient outcomes.¹⁴ If the invisible hand of the

¹² Pierson (2000) p. 253 (2004) p. 17 (brackets added).

¹³ These three points are from Pierson (2000)(2004)

¹⁴ Arthur (1994) and David (1985)

market is supposed to give incentive to actors to maximize profit and utility, then how do we explain when inefficient outcomes become deeply ingrained? David's often cited study into the dominance of the QWERTY keyboard format despite superior formats specifically adopts the logic of path-dependence; positing that it was QWERTY's early arrival in the *sequence* of competing formats that led to its market dominance that persists even today.¹⁵ This argument has served as the basis for numerous examinations of competing technologies. The basic idea is that as more users adopt a technology the more pay-off (increasing returns) there is for others in using that technology. Later, Arthur would even elaborate a set of characteristics that make particular competing technologies subject to features of path-dependence.¹⁶

Another area of economics where path-dependence based explanations have been prevalent is economic geography; the logic of increasing returns being the driving causal mechanism again. Pierson surmises, "... initial centers of economic activity may act like a magnet and influence the locational decisions and investments of other economic actors. Established firms attract suppliers, skilled labor, specialized financial and legal services, and an appropriate physical infrastructure. The concentration of these factors may in turn make the particular location attractive to other firms that produce similar goods."¹⁷ What may have been a coincidental economic hub in the beginning can develop through the logic of path-dependence. Krugman even goes as far as to say: "if there is one single area of economics in which path dependence is unmistakable, it is *economic geography* – the location of production in space."¹⁸

The next step is extending the logic of path dependence into the political world. According to the HI tradition the building blocks of the political world are institutions.¹⁹ Be it a model of governance, a form of healthcare provision, or a property rights system; institutions are the essential units of analysis in the political world. Hence, much work on bringing path-dependence based arguments into the political world has done so in the context of long-term institutional development. However, there are numerous

¹⁵ David (1985)

¹⁶ See Arthur (1994) p 112

¹⁷ Pierson (2004) p. 25

¹⁸ Krugman (1991) p. 80

¹⁹ Pierson and Skocpol (2002)

characteristics of institutions and the political world that are drastically different than those of the economic world of which we must be aware.

First, the political world is very dense and intertwined.²⁰ Once we do pick an institutional path, we can't just drop it for another. In the market firms can fail and drop out all the time. However, easy exit from the political stage may not often be possible. A whole peripheral institutional structure may have developed around the initial institution that cannot be easily dismantled. Second, unlike in the economic world where at an idealized start all actors are equal, politics is highly subject to power asymmetries. Much of politics is about authority rather than exchange. Third, politics has no clear measuring stick for success. Where in the market profit performance and market share are quantifiable markers of success, in politics it can be very hard to tell whether we are indeed moving towards an inefficient institutional arrangement or flourishing; and indeed according to whom? Thus fourth, collective action problems are particularly relevant in politics as well. Many different actors interact at many different levels with their own agendas. Characterizing institutional development as driven by a singular collective actor, such as a firm in economics, is not sufficient. It may be that these characteristics of politics actually make it more prone to path-dependent development than the economic world.²¹

To give a more concrete illustration we can return to Karl's work on oil economies to further nuance her discussion.²² We have established that Karl points to how sequence plays an important role in how large oil discoveries affect institutional development. If large oil discovery occurs sequentially after a durable set of democratic and economic institutions are in place, then evidence suggests that it is very unlikely that the discovery will have a substantially negative impact on development. However Karl suggests further that if the inverse is true, that large oil discovery sequentially precedes institutional development, then a path-dependent trajectory of poor institutional development can follow, leaving nations prone to civil war.²³

²⁰ These four points are again from Pierson (2000)

²¹ Ibid.

²² Karl (1997)

²³ This argument is first developed in Karl (1997) and then further elaborated in relation to conflict in Kaldor *et al* (2007)

This poor institutional development usually revolves around a self-reinforcing focus on rent-seeking policies, at the expense of neglecting other important periphery institutions that ensure civic and economic growth. With a huge injection of capital and an underdeveloped institutional structure a hotbed for greed, corruption, and inequality is formed. It is important to stress that, just as in the Polya urn example, at the outset the outcome of a path-dependent process is unpredictable, but once it begins it quickly becomes open to relatively limited or ‘bounded change’. Just because oil discovery sequentially precedes institutional development does not mean that a nation is doomed to a path of poor institutional development. Rather, without the effective foresight offered by strong institutional structures a newly oil rich nation is likely to enter into a path of short-term incentives that encourage poor democratic and economic institutional development; and that can in turn leave a nation prone to civil war.

Karl’s work on oil economies is useful here because it highlights the interaction of four elements of a compelling causal narrative: time, sequence, context, and a mechanism. *Time* is inherent in Karl’s study as the cause, large oil discovery, has considerable temporal separation from the outcome of poor institutional development and in turn civil war. *Sequence* plays a decisive role in the development of *context*. In this case the context is oil discovery either against the contextual backdrop of low or high institutional development. This context interacts with a *mechanism*, path-dependent rent-seeking, to produce a narrowing range of outcomes, i.e. bounded change. Specifically in the case of Venezuela, Karl argues that:

...there was never an equal probability that other choices would be made in their place; that each decision was related and grew from the previous one; that, except during uncertain moments of regime change, the range of choice narrowed from one decision to another as Venezuela moved further into its oil-led trajectory.²⁴

Obviously whether or not a civil war follows a large oil discovery is a much more complex and multifaceted analysis than suggested here, but the essential elements

²⁴ Karl (1997) p. 226.

remain. Without specific attention to time, the interaction between all these elements is absent from a causal account.²⁵

However the concept of path-dependence is not without serious issues. The most obvious of these problems is inherent in much historically oriented research. Essentially “without criteria for identifying a meaningful beginning point, the investigator can easily fall into the trap of infinite regress – i.e., perpetual regression back in time to locate temporally prior causal events.”²⁶ In temporal causal analysis it is always possible to take another step back in time to posit an earlier cause of the eventual outcome of interest. This is essentially a periodization problem that potentially discredits path-dependence based arguments.²⁷ A second problem is that path-dependence based arguments are what Thelen calls “too contingent and too deterministic,” meaning that they are too open to possibility at the outset and too durable at the finish.²⁸ What we end up with are contingently (unpredictably) initiated processes that eventually settle on an equilibrium that is too stable. Thelen, suggests that without specific attention to context and mechanisms path-dependence argument amount to little more than accounts of stability. Indeed, if we eventually settle on an equilibrium then how do large scale changes and reversals ever occur? The path-dependence framework leaves no room for describing change outside of the bounded path.

Thirdly, there are many other types of non self-reinforcing patterns of institutional development, such as parallel; intersecting; and incremental processes, that may actually prove more prevalent than path-dependence based arguments.²⁹ We will address this third point at greater length later in the chapter, but for now our focus turns to addressing the periodization problem of conceptualizing the beginning and end of path-dependent processes. For staying this path will continue to shed light on key issues surrounding context and causal mechanisms in time.

²⁵ Falleti and Lynch (2009) Mahoney (2000) Pierson (2004) Thelen (1999)

²⁶ Mahoney (2000) p. 527

²⁷ Falleti and Lynch (2009)

²⁸ Thelen (1999) p. 385

²⁹ For outlines of other types of temporal processes see Mahoney (2000) Mahoney and Thelen (2010) as well as Pierson (2004) chapter three.

Critical Junctures

Pierson posits that in the effort to alleviate the periodization problems inherent in path-dependence based arguments of causation “social scientists need to break through the seamlessness of history somewhere.”³⁰ It is from this insight that the critical-junctures framework has emerged. In its most basic form the concept of critical-junctures, building from the idea of equilibrium described above, takes the logic of a punctuated-equilibria model. That is to say that the *equilibria* of a path-dependent processes are *punctuated* by moments of dramatic change. The ways these moments are typically conceived are as contingent exogenous events that intervene in, or dislodge, a path-dependent process.³¹ This logic is attractive for it fits with an intuitive sense of change and has thus found its way into many theories in the social science that attempt to describe large-scale change.³²

Again, we can turn to Karl’s work as an example of a loosely applied critical junctures framework.

At least three critical junctures shape patterns of decisionmaking... prior to the 1973 price hike: the entry of international oil companies into weak states; the imposition of income taxes on companies as a prime source of the state’s fiscal revenues; and regimes changes that either reinforce or counteract reliance on oil rents. These critical junctures are path-dependent- that is, they are initially set off by the entry of the oil companies... The institutional legacy of these events shapes a common decision calculus for policymakers in petro-states.³³

Essentially during the path-dependent process of development in new petro-states the range of choices for decision makers is generally narrowing, but during the critical-junctures the range of possible decisions is temporarily expanded.

The application of critical-junctures frameworks has been widespread. There have even been compelling theories of war structured around the punctuated-equilibria model

³⁰ Pierson (2000) p. 253

³¹ Pierson (2000) Thelen (2000)

³² Collier and Collier (1991) study of labor movements in Latin America is perhaps the textbook example of the critical-junctures logic. Also, Linz and Stepan’s (1996) work on regime change in Latin America and post-communist Europe is a good example of a theoretical framework implicitly infused with the overarching logic of a punctuated equilibria model of change.

³³ Karl (1997) p. 197.

with peace as the equilibrium and war as the punctuated critical juncture; interestingly, this relationship has been posited *vice versa* as well.³⁴ Similarly, Keen's notion of civil wars as the movement from a self-reinforcing equilibrium of peace to a self-reinforcing equilibrium of war is structurally analogous.³⁵ However, despite the frequent application of the underlying logic of critical-junctures, actually specifying the characteristics of a critical-juncture at an operational level is difficult. Can the critical junctures framework move beyond its role as a general descriptive model to one specific enough to be predictive?

Numerous scholars have posited operational definitions of critical-junctures that focus on a diverse set of characteristics.³⁶ There are those that define critical-junctures as periods of heightened agency, as Karl does, or by their temporal duration relative to their outcome and so on, but none offer a promising path towards a predictive critical junctures model.³⁷ The point is that while the underlying logic of critical-junctures is attractive, operationalizing it into a functional predictive model that accurately depicts change across cases is much more challenging and may illuminate some key weaknesses of the logic.

The critical-junctures framework has only temporarily sidestepped the periodization issue of path-dependence. If path dependence is a collective chain of causes operating under the mechanism of increasing returns, then a critical juncture is just a different kind of cause in this chain. Rather than narrowing the range of possible outcomes, the critical-juncture opens the range of possible outcomes. But why should we think of critical-junctures as anything but another link in the chain of a causal process? It seems that critical-junctures are a convenient, but somewhat arbitrary, place to break causal narratives. If this is the case then perhaps we are still subject to the same problem of infinite regress. Furthermore, the critical-junctures logic separates the study of continuity from the study of change, two elements which in fact may actually be more

³⁴ See Leventoglu and Slantchev (2007)

³⁵ Keen (2008)

³⁶ See Capoccia and Kelemen (2007) Hogan and Doyle (2007) Mahoney and Thelen (2010) Slater and Simmons (2010) Soifer (2009)

³⁷ Hogan and Doyle (2007)

“inextricably linked” at a conceptual level – we cannot understand one without the other.³⁸

There are indeed times when largely stable processes are violently interrupted by contingent exogenous factors, e.g. the peripheral effects of the collapse of the Soviet Union. Perhaps it is no wonder that there has been a focus on this type of “discontinuous change” as virtually all definitions of an institution have persistence built into them.³⁹ The critical-junctures logic risks framing our analysis in an overly ridged format that can hide other, more fluid, forms of institutional development and change from view. Indeed, there seems little evidence to suggest that a punctuated-equilibrium model is the most pervasive form of development and change.⁴⁰ From the study of continuity and change there are other models of institutional development sensitive to time such as thresholds, causal chains, and cumulative causes/effects.⁴¹ Also, there are compelling theories of endogenous gradual change that are much more amenable to the goal of the joined study of continuity and change as an ongoing asynchronic process.⁴²

It is clear that the punctuated-equilibria / critical junctures framework is not a be all and end all, but rather a stepping-stone for moving forward conceptually. Indeed, “...the critical junctures literature has taught us a great deal about the politics of institutional formation and the importance of the timing, sequencing, and interaction of ongoing political processes...”⁴³ With the goal of studying the way mechanisms and context interact across time we need to elaborate theoretical frameworks that are capable of identifying and conceptualizing the diverse range of causal processes that occur in the world, not just a punctuated-equilibria model of change. Paying explicit attention to the role of context and mechanisms will prove a fruitful path forward.

³⁸ Mahoney and Thelen (2010) p. 9

³⁹ Thelen (2009) p. 474

⁴⁰ Mahoney and Thelen (2010) Thelen (2000)

⁴¹ See Pierson (2004) Chapter Three for a review of these.

⁴² See Mahoney and Thelen (2010)

⁴³ Thelen (1999) p. 392

Context & Mechanisms

Falleti and Lynch point out that: “One way to appreciate the importance of context for causal arguments is to think about context as a problem of unit homogeneity. We cannot expect statistical analysis to produce valid causal inference based on units of analysis that are not equivalent in ways that are likely to be causally relevant...” so why should we expect to be able to compare contextually non-equivalent cases in small-n analysis?⁴⁴ Furthermore, context is important to understand, for as we will see, it influences how we think about what mechanisms are and how they function.

We are interested in exploring the basic causal process of how a context, through a mechanism, creates an outcome; $C \rightarrow M \rightarrow O$.⁴⁵ As we have seen, the critical-junctures framework has served as a conceptual foundation for exploring continuity and change. Thus, a good place to start in piecing together the puzzle of the role of context and mechanisms is in those efforts that attempt to modify the critical junctures framework to accommodate these key factors.

Capoccia and Kelemen’s work is among the first serious efforts to formalize the critical-junctures framework.⁴⁶ Working from the rational-choice institutionalism tradition Capoccia and Kelemen conceptualize critical junctures as the relaxing of structural restraints to produce moments of heightened agency. In these moments of heightened agency actors are less restricted, or even unimpeded, in their rational decision-making than they would be during the period of bounded change in the path-dependent process. Capoccia and Kelemen’s focus is less on conceptualizing context itself or the actual outcomes of mechanisms, but rather how within the proper context the mechanism of rational choice is heightened to produce enduring outcomes; $C \rightarrow M$ (Rational Choice) $\rightarrow O$.

We can neatly translate the feasibility thesis to this logic formation: C (Feasibility) $\rightarrow M$ (Greed/Economic Rationale) $\rightarrow O$ (Rebellion). Capoccia and Kelemen’s work is an important step in that it addresses with systematic attention many

⁴⁴ Falleti and Lynch (2009) p. 2

⁴⁵ This basic $C \rightarrow M \rightarrow O$ pathway is adapted from Falleti and Lynch (2009) who replace the word context with input and thus use $I \rightarrow M \rightarrow O$ instead.

⁴⁶ Capoccia and Kelemen (2007)

of the epistemological and methodological issues that surround the critical-junctures framework. However, while Capoccia and Kelemen pay attention to the rational-choice mechanism of change they are less successful in incorporating context into their argument. As in the feasibility thesis, exploring large scale change through models that reduce large scale processes to the rational decision making of key actors will face considerable collective action problems. Key actors are important, but their decisions are not end-alls in civil war making.

Slater and Simmons present an important framework for addressing the issue of infinite regress, discussed earlier, by incorporating explicit attention to context into the critical-junctures framework. Though not the first to use the term, Slater and Simmons are certainly the first to give the conceptual solution of “critical-antecedents” systematic attention. Critical-antecedents are “factors or conditions preceding a critical juncture that combine with causal force during a critical juncture to produce long-term divergence in outcomes.”⁴⁷ Slater and Simmons argue that adding collective contextual factors into a causal account is not yet another step in an infinite regress, but rather an essential *informative* regress.⁴⁸ This is an important step because it adds a temporal dimension to context. Slater and Simmons think of critical-antecedents (CA) as a temporally separated pre-context that conditions the later context. Slater and Simmons’ argument takes the shape of $(CA + C) \rightarrow M \rightarrow O$.

Translating the feasibility thesis into this logic is more challenging than in our previous example. The feasibility thesis leaves no room for incorporating the role of temporally separated events or processes. The feasibility thesis makes its findings based on the contextual conditions at the outbreak of rebellion, leaving out the effects of previously occurring events and processes. Slater and Simmons’ central challenge is in differentiating between those antecedent events and circumstances that “condition” a cause during a critical-juncture and those that are irrelevant. The criteria for this are difficult to establish and tends to require in-depth knowledge of specific cases and attention to counterfactual evidence. All and all, we can still question whether we have

⁴⁷ Slater and Simmons (2010) p. 889

⁴⁸ Ibid.

really solved, or merely sidestepped, the issue of infinite regress. Indeed, where we draw the line in periodizing our causal accounts can at times seem an ambiguous process.

Soifer has taken Slater and Simmons' efforts to expand our understanding of the role of context arguably a step further. Soifer's framework revolves around the concepts of permissive and productive conditions. Soifer's argument is that "we must distinguish between two types of causal conditions at work during the critical junctures: the *permissive conditions* that represent the easing of the constraints of structure and make change possible, and the *productive conditions* that, in the presence of the permissive conditions, produce the outcomes..."⁴⁹ (Permissive + Productive = C) → M → O.

This structure is much more directly amenable to portraying the feasibility thesis. The feasibility thesis's overwhelming focus is on opportunity for economic gain, rather than grievance based motives, being determinate in the outcome of civil war. However, while grievance (motive) does not have a statistically significant correlation relationship to civil war, the feasibility thesis still passively admits the crucial role of motive. Even if "motivation is incidental, being supplied by whatever agenda happens to be adopted by the first social entrepreneur to occupy the viable niche..." it must be present for the opportunity for gain through rebellion to be pursued.⁵⁰ Regardless of their instrumental or indeterminate nature, grievance based narratives are essential for rebellion. Thus we can fit feasibility loosely into Soifer's model; (Opportunity/Feasibility + Motivation/Grievance) → Greed → Rebellion.

Soifer's work is another step forward because rather than merely adding depth to context via an antecedent event or condition, he is beginning to posit *how* different temporally unfolding processes combine to create context in their role as either permissive or productive. Also, Soifer makes a discussion of permissive and productive conditions in the language of necessary and sufficient conditions that, as we will explore further in Chapter Four, is a promising direction of inquiry. However, thinking about context as comprised of permissive and productive conditions may be limiting too. As with civil war, causal processes are often so complex that framing them in a conceptual dyad may limit our analysis.

⁴⁹ Soifer (2009) p. 2

⁵⁰ Collier *et al* (2009) p. 24

Mahoney and Thelen rightly point out that one of the common characteristics of most understandings of critical-junctures is that they revolve around a typically exogenously generated, and thus contingent, change in context as the activator of a mechanism.⁵¹ However, with this focus on unpredictable outside effects in mind we are only likely to produce postdictive description rather than the more valuable predictive theory. For example, the feasibility thesis does not give us much insight to *how* the condition of feasibility comes to be, rather that it is a contingent intersection of processes. In building a more general understanding of causation and mechanisms we must be attentive to gradually occurring endogenous processes of change as well.⁵²

Mahoney and Thelen outline how institutions can change through the endogenous mechanisms of layering, drift, conversion, and displacement.⁵³ Furthermore Mahoney and Thelen go on to explicate what types of actors, subversives; parasitic symbionts; insurrectionaries; and opportunists, are likely to correspond to each mechanism.⁵⁴ Appealing to our intuition, we might expect that in an examination of the gradual processes that lead to civil wars we could expect to find insurrectionist actors changing structures through the mechanism of displacement. Though, any reliable analysis in the framework must rely on the findings within individual cases. Mahoney and Thelen's work is a fantastic example of a middle-range theory that explores a variety of transferable mechanisms through which change can occur.

Perhaps the most important recent advance in formalizing the role of context in causation for our purposes is the work of Falleti and Lynch.⁵⁵ Rather than conceptualizing context in the dyadic formation of productive and permissive conditions, Falleti and Lynch actively move away from the punctuated-equilibrium model by thinking of context as collectively comprised by a multitude of layers (L) that are all moving on individual unsynchronized paths; e.g. $(L_1 + L_2 + L_3 = C) \rightarrow M \rightarrow O$. Falleti and Lynch's main argument is that causal processes are more often than not so complex that they cannot be neatly placed in a critical juncture framework. Attempting to periodize a causal analysis based on a critical juncture may hide from view the

⁵¹ Mahoney and Thelen (2010)

⁵² Ibid

⁵³ Ibid. See page 19 for a synoptic table.

⁵⁴ Ibid, See Page 28 for a synoptic table.

⁵⁵ Falleti and Lynch (2009)

interactions between other important contextual layers and processes.⁵⁶ Indeed, Falleti and Lynch argue that taking insights about context, mechanisms, and causation further towards a more generalized model of causation in time requires leaving behind an adherence to a punctuated-equilibria framework. It is unlikely that punctuated-equilibria models of change will ever escape periodization problems.

Essentially, path-dependent processes and critical-junctures are relative to which contextual layer we are looking at.⁵⁷ For example: in contextual layer₁ we may observe a path-dependent process, such as rent-seeking centric development in an institutionally weak new petro-state, occurring with a defined beginning point (oil discovery) and end point at our outcome of interest (civil war); in contextual layer₂ we may find a static contextual variable, such as the availability of hiding space for rebels in mountainous, forested, uninhabited, or non-contiguous territory; and in contextual layer₃ we may find an emerging point of grievance, such as ethnic marginalization. As we have stressed, our analyses must be attentive to the interaction between *all* these relevant contextual layers.

Periodizing our analysis around just the observable critical-juncture in layer₁ neglects that fact that different layers are moving at different speeds, on different paths, and constantly interacting with each other. The process of growing ethnically based grievance occurring in contextual layer₃, though perhaps not synchronized to the outcome of interest (it could have reached a stable level long before the outbreak of civil war), may be an extremely important part of the causal analysis. To assume these layers exert causal force in a synchronous manner, as in a critical-juncture, is unfounded. Falleti and Lynch outline this logic clearly:

Because the multiple layers of context that affect the outcomes of causal processes cannot all be expected to change at the same moment, dividing a historical narrative into periods based on the starting or ending point of a single causal process risks hiding from view precisely those interactions among layers moving at different speeds that can generate change over time.⁵⁸

⁵⁶ Ibid

⁵⁷ See Capoccia and Kelemen (2007) for an especially good discussion of this.

⁵⁸ Falleti and Lynch (2009) p. 16, also their piece offers a particularly good visual heuristic model for understanding this logic in a very intuitive way.

Taking these insights into account we can begin to have a refined conception of what context and mechanisms actually are and how they interact with each other. Context is an overarching concept that describes the collective state that individual contextual layers combine to create and change across time. A mechanism, as discussed in Chapter Two, is “an unobserved entity that – when activated – generates an outcome of interest.”⁵⁹

We can observe the feasibility thesis as a conceptual example here by again translating it into a congruent formation. In the feasibility thesis all the variables that make up the condition of feasibility are analogous to contextual layers. Each variable is a layer that has its own value, and has developed through its own path, at its own pace. Together these variables create a context (feasibility) that allows the unobservable mechanism of greed to activate the outcome of rebellion. (Variable₁ + Variable₂+ Variable₃ = Feasibility) → Greed → Rebellion.

However, while explaining the feasibility thesis in such a manner is a step forward it is still ultimately insufficient. While there are many sub-layers that make up feasibility, it is clear that feasibility itself is but one of the many social, psychological, political, and economic contextual layers that drive violent intrastate conflict. Falleti and Lynch spend time outlining how different subtypes of contextual layers and mechanisms can cluster together to form larger contexts and processes that operate through “higher-level mechanisms.”⁶⁰

Within peace and conflict studies Falleti and Lynch’s falls well in line with Miall’s attention to social, state, regional, and global contextual layers, each of which may be comprised by numerous individually developing sub-layers, as part of an overarching conflict situation.⁶¹ Should we conceive of feasibility as a cluster of sub-layers that form but one main layer in the larger causal process of civil war? This idea will be explored further in Chapter Four.

⁵⁹ Mahoney (2001) p. 580

⁶⁰ Falleti and Lynch (2009) p. 7

⁶¹ See Miall (2007) chapter 4.

Conclusion

What does this discussion of time, context, and mechanisms boil down to for the feasibility thesis? First, context in relation to the feasibility thesis is best understood as a unit homogeneity issue.⁶² The feasibility thesis makes no typological distinction in its dataset between different varieties of violent intrastate conflict. However, it uses the data from all of these potentially non-equivalent cases to make a statement about a specific typological variety of violent intrastate conflict: rebellion. Why should we be able to assume that the same context (feasibility) drives all typological varieties of civil war? Furthermore, why should we be able to compare all these typological varieties of civil war as homogeneous units to justify the decisiveness of the context in terms of feasibility? As discussed in Chapter Two, explicitly including this variation on the independent variable(s) in the dataset is the *modus operandi* of regression analysis. However, taking this path of inquiry hides from view the importance of the individual contexts of cases. If scholars wish to make comparisons between cases, as the feasibility thesis does, they “... must be acutely attuned to the analytical equivalence of the contexts they study.”⁶³

This is a severe weakness in the feasibility thesis. Context is more than just variables. Exploring the interaction between various contextual layers, and thus the overarching context they create across time, in individual cases is not only an essential step in establishing unit equivalence for comparison, but an important form of inquiry that can yield valuable and nuanced insights in itself. In this regard Miall is right to assert: “We need to put the context back into conflict theory...”⁶⁴

Second, by ignoring the role of contextual equivalence between cases the feasibility thesis weakens the explanatory value of its determinate mechanism; greed. If where we find feasibility (context), greed (mechanism) should produce rebellion (outcome), then how do we account for counterfactual or more complex cases, such as the drug-wars in Mexico? Essentially the feasibility thesis assumes the mechanism of greed as constant rather than questioning the role context has in not only enabling, but

⁶² Falleti and Lynch (2009)

⁶³ Ibid p. 18

⁶⁴ Miall (2007) p. 85

also in forming the mechanism greed; and furthermore its interaction with other mechanisms. Greed is indeed an invaluable addition to our understanding of the causal mechanisms involved in civil war, however we are unconvinced that it is the only, or even the determinate, mechanism involved in the incidence of civil war.

Third, by offering no explicit attention to time the feasibility thesis is blind to the dynamic interaction between timing, sequence, context and mechanisms at various levels. Miall intuitively understands the interconnected role of context, mechanisms and time in conflict studies when astutely points out that:

Considering the temporal context first, any conflict situation can be related to trends at various time-scales: very long-term processes (such as a long-term change in a social or international system), intermediate processes (such as the formulation of a particular policy by a decision maker) and short-term processes (such as decisions). In the case of wars, it is common to distinguish underlying or background causes, proximate and trigger causes of war.⁶⁵

The feasibility thesis asserts a set of conditions under which rebellion will occur, but has no description of the temporal processes by which these conditions evolve. How do we account for nations like Tajikistan, which meet nearly every qualifier for feasibility with flying colors, yet maintain a fragile peace after years of civil-war? We can argue plenty about whether or not Tajikistan is actually at “peace” by means of Galtung’s conceptual distinction of positive and negative peace, but the point here is that the civil war that raged from 1992-1997 and killed an estimated 50,000 people is no longer active.⁶⁶ In spite of this, Tajikistan still meets nearly all quantitative qualifiers for feasibility. If rebellion is feasible in Tajikistan, *when* will it occur and by *what* processes? Furthermore, if a peaceful arrangement can be found in spite of the conditions for feasibility this is surely a valuable line of inquiry. Drawing meaningful causal analysis from a snapshot of data is doubtful; we must be attentive to the process of the moving picture when we make our analyses.

⁶⁵ Ibid.

⁶⁶ For positive and negative peace see Galtung (1996). For Tajikistan see Torjesen and MacFarlane (2007).

With these criticisms in mind we can assert that developing a pluralistic research strategy that is attentive to contextual complexity, causal mechanisms, and their dynamic interaction and development across time is an essential goal in studying the causes of war; and good causal analysis in general. Chapter Four builds on the surface level discourse in Chapter One, the ontological and methodological discourse in Chapter Two, and the temporal discourse here in Chapter Three to elaborate a pluralistic research strategy based in set-theoretic logic, attentive to the role of context and mechanisms across time, for studying the diverse causes of civil war.

Chapter Four

Set-Theoretic Approaches to the Causes of Civil War

We have been concerned to show that in the study of the causes of civil war we must be attentive to diversity. In Chapter One we saw the diverse range of explanations for the causes of civil war. The brief example of the drug wars in Mexico showed that when we look at individual cases of civil war, the diversity of explanations and causes becomes ever more intricate and unique. If we hope to find overarching commonalities, we must be attentive to the complexity within and the diversity between cases.

In Chapter Two we explored the diversity of methods commonly employed in the discourse surrounding the causes of civil war, our conclusion being that the methods employed and findings produced are diverse and distinct; no one method can give a complete picture of the causes of civil war. We must be attentive to the diversity of scientific inquiry to build the most insightful picture of the causes of civil war possible.

Chapter Three focused on developing an understanding of several key concepts that allow us to begin to expand the depth of our understanding of the causes of civil war. In exploring the diverse range of causes of civil war a foundational understanding of the roles of context, mechanisms, and time is invaluable in moving forward.

In Chapter Four we continue in this focus on diversity by proposing that a set-theoretic model of analysis can be attentive to the inherent complexity and diversity of the causes of civil war in individual cases while simultaneously explicating the overarching commonalities. Furthermore, a methodological approach based in set-theory can serve as a bridging tool between qualitative within-case analysis and quantitative between-case analysis and is an important part of a holistic research strategy. Set based analysis draws on the strengths of both qualitative and quantitative approaches while reconciling many of their individual weaknesses.¹ Lastly, set-theoretic approaches to the study of the causes of civil war include the possibility for explicit attention to the role of context, mechanisms, and time.

¹ Ragin (2000)(2008)

Chapter Four proceeds in four parts. First we explore set-theoretic thinking's foundational concepts, highlighting the critique that set-theoretic approaches offer to the feasibility thesis.² Second, to further these points we offer a hypothetical fuzzy-set analysis juxtaposed against the structure of the feasibility thesis. In part three we explore the avenues for explicit inclusion of context, mechanisms, and time into set-theoretic approaches to studying the causes of civil war. This leads us to part four, where we situate set-theoretic thinking as an integral piece in a holistic research strategy for studying the causes of civil war.

Why Sets?

In Chapter Two we contrasted the causal logics of probabilism and determinism at an ontological level. While this dyadic characterization was instrumental for the discussion in Chapter Two, further nuance is necessary here. We must make a distinction between the ontological probabilism, described in Chapter Two, and the alternative complexity-induced probabilism.³ “Complexity-induced probabilism denotes that the world is inherently deterministic, but looks probabilistic because one lacks sufficient and/or sound enough data and data processing capacities in order to predict single events.”⁴ Essentially complexity-induced probabilism suggests that the social world is too complex to analyze by deterministic standards, even though these standards provide the “real” structures of causation.

This distinction between ontological and complexity-induced probabilism is essential in building a pluralistic approach to social scientific inquiry. Essentially, it is unlikely that findings based on the net-effects of individual causal variables at a

² Set theory is hardly a new advent in the world of mathematics. In the 1840's Thomas Boole would elaborate a set of mathematical functions that we know today as Boolean algebra. Boolean algebra deals with sets and set relationships and is the foundation of the binary code used in almost all computers today. In 1965 Lotfi Zadeh elaborated these set functions further with the advent of fuzzy-sets. However, the application of set and fuzzy-set logic in the social sciences has been extremely limited until the last decade or so. Hence literature on set theory and methodology are also relatively limited. However, Charles Ragin has published two works in 2000 and 2008 that are the definitive guide to using set logic in the social sciences. This chapter will draw heavily on these works.

³ Brady and Collier (2010); Bennett (2003); Hall (2003); King *et al* (1994); Kuehn and Rohlfing (2009); Salmon (1998).

⁴ Kuehn and Rohlfing (2009) p. 15

quantitative cross-case level will hold at a within-case qualitative level. This is because of the intentionally included variation in quantitative datasets. Recall our discussion of the feasibility thesis in Chapter One and Two. Though the feasibility thesis makes propositions about what causes civil war from a data sample, cases within that sample do not necessarily have to fit the explanation. Thus if we adhere to ontological probabilism, combining research findings will prove difficult, as within-case analysis cannot accommodate the net-effects logic of between case analyses.⁵ The average effect of a variable on an outcome across 100 cases will rarely give a meaningful picture of the causal process occurring within each of the 100 individual cases. However, if we adopt complexity-induced probabilism we are open to the possibility that between-case quantitative analysis can aim to accommodate the deterministic findings from within-case qualitative analysis. After all, we can think of deterministic causes as perfect correlations in the language of statistical analysis.

The inherent weakness of case-studies in handling probabilistic causal relationships, and the openness of cross-case analysis to show deterministic logic, should suggest that the starting point in a pluralistic research strategy should be establishing the specific within-case deterministic causes. The challenge then, is to extrapolate these deterministic relationships into cross-case relationships. As described in Chapter Two, moving beyond the first case is essential for establishing transferable causal relationships, as single cases provide little if any cross-case explanatory leverage.⁶ However, this is a serious undertaking. Remaining attentive to the diversity of within-case causation while at the same time establishing meaningful cross-case causal commonalities is among the most central challenges in the social sciences. Understanding this challenge is the key jumping-off point for exploring the promise of set-theoretic analysis as an essential bridging tool between deterministic within-case analysis and probabilistic cross-case analysis in the study of the causes of civil war.

⁵ Ibid. Here we mean specifically the probabilistic logic of statistically based quantitative methods. This position is also echoed in Mahoney (2008)

⁶ Ibid.

Thinking In Sets: Basic Concepts in Crisp-Set and Fuzzy-Set Analysis

The most basic set relationship to understand is that of subsets and supersets.⁷ Polar bears are a subset of the set ‘bears’, the set ‘bears’ is a subset of the set ‘mammals’. These sorts of set relationships are “straightforward and easy to accept as valid because they are definitional in nature...”⁸ Polar bears have all the characteristics of bears; and bears have all the characteristics of mammals. These definitional sets are easy to visualize with Venn-diagrams because they are *crisp-sets*; i.e. members are dichotomously defined as either in the set or out of the set. Accordingly in figure 4.1 the circle representing the set of polar bears is completely contained in the circle representing the set of bears and likewise for the set of mammals.

Figure 4.1

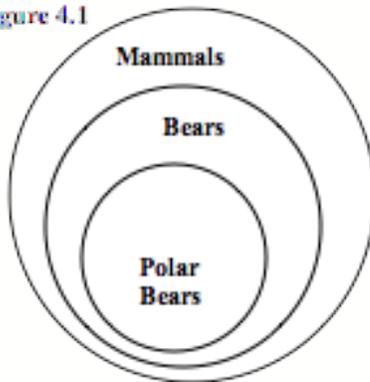


Figure 4.2

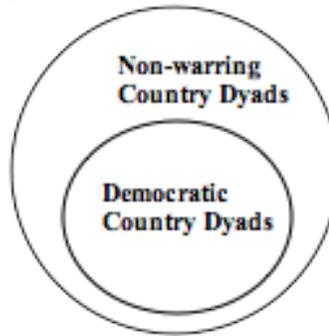
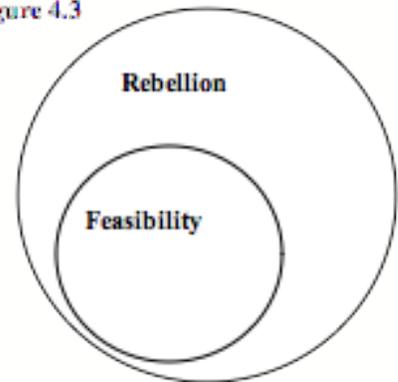


Figure 4.3



Though in this example the sets are inherently definitional in nature, the subset-superset relationship can be extrapolated to set relationships between conditions. In this regard set-theoretic thinking is uniquely attuned to portraying the verbal-linguistic nature of theory in the social sciences. For example: “Consider the “democratic peace” argument that democracies do not go to war against each other. This statement is essentially a claim that country dyads in which both parties are democratic constitute a perfect (or near-perfect) subset of non-warring country dyads.”⁹ This relationship is reflected in figure 4.2. Set relationships can even portray the central tenet of the

⁷ Ragin (2008)

⁸ Ibid, p. 14

⁹ Ibid. p. 16

feasibility thesis: “where a rebellion is feasible it will occur...”¹⁰ Or, in the language of sets, the condition ‘feasibility’ is a subset of outcome ‘rebellion’. In figure 4.3 this maxim holds true; the conceptual set ‘feasibility’ exists completely within the set ‘rebellion’.

Table 4.1

	Causal Condition (Feasibility) Absent	Causal Condition (Feasibility) Present
Outcome (Rebellion) Present	Cell 1: Cases here undermine the Feasibility thesis	Cell 2: Cases here support the Feasibility thesis
Outcome (Rebellion) Absent	Cell 3: Cases here support the Feasibility thesis	Cell 4: Cases here undermine the Feasibility thesis

Viewing this postulated relationship between the causal condition ‘feasibility’ and the outcome ‘rebellion’ as a truth table that shows all the logically possible combinations of the two sets, cause and outcome, is useful for connecting back to a previous point of critique. Table 4.1 shows the possible combinations of cause and outcome in a layout amenable to the logic of regression analysis (essentially mirroring the format of an x-y scatter-plot). Cases in cells 2 and 3 directly support the feasibility thesis; however, cases in cells 1 and 4 directly counter it. As described in Chapter Two, regression analysis intentionally includes variation on the independent (cause) and dependent (outcome) variables in the effort to find the most representative net-effect of causes on outcomes. The fact that a large portion of the feasibility thesis’s dataset may be in cells 1 and 4 does not hinder, rather is essential in, the goal of net-effects analysis.

However, if we use a deterministic standard as a starting point in a methodologically plural approach, as we must, the net-effects thinking of the feasibility thesis fails to explain the diversity of cases (i.e. those in cells 1 and 4). Furthermore, the example of the drug-wars in Mexico from Chapter One shows that even cases that fall into cell 2 may not be well explained by the feasibility thesis. The key point that crisp-set thinking suggests here is that the cases that fall into cells 1 and 4 may constitute distinctly different types of cases, with their own distinct causal logic from those in cells 2 and 3.

¹⁰ Collier *et al* (2009) p. 24

This points out that quantitative cross-case analysis tends to rely on ‘given’ populations rather than being attentive to the typological diversity of cases. Take the feasibility thesis for example. From the outset the feasibility thesis ignores the range typological diversity in occurrences of civil war. All cases of civil war in the dataset of the feasibility thesis are treated as cases of the ‘same thing’, regardless of whether or not at a within-case level we see distinctly different causal logics are present. Is it appropriate to compare ethno-religious violence in Indonesia with nationalist rebel insurgencies in Peru as cases of the same causal logic? This is just what the feasibility thesis does. With a set-theoretic approach, by contrast, we must be attentive to theoretically informed populations. What does theory tell us about different kinds of civil war? What cases should we then compare? The cases in cells 1 and 4 of table 4.1 are clues for us to follow in the effort of understanding that diverse range of causes for civil war.

Statistically based quantitative analysis tries to avoid selection bias by including as much variation as possible while qualitative analysis tries to avoid homogeneity bias by being attentive to specific cases. As we will see, set thinking can provide a middle ground by expanding the logic of within-case analysis to a cross-case level.

However, at this juncture skeptics may point out that taking set-theoretic thinking outside of definitional sets, figure 4.1, is inappropriate. For example, thinking of democracy as a *crisp-set*, a dichotomous set in which cases are either fully in (1) or fully out (0), lacks nuance. There is a range of countries that we may consider democratic, but to assume these countries as homogenous in their level “democraticness” also hides the reality of diversity. Norway and Mexico are both democracies, but there is a vast range of conceptual space between them that we need to be able to scale. The same is true in the feasibility thesis. Feasibility is made up of 14 variables, most of which exist on a ratio or logarithmic scale. For example, if we want to understand the role of the economic performance of a country on the outcome of civil war we may look at GDP. What use is it to categorize countries as either low (0) or high (1) GDP? More nuance is indeed necessary, thus it is commonplace that quantitative cross-case analysts scoff at the critiques of *crisp-set* logic.

The usual argument, reproduced in most textbooks on social research, is that the lowest form of measurement is the nominal scale (i.e. crisp-sets), followed by the ordinal scale (ranked categories), followed by the interval scale (equal intervals, represented with interpretable numerical values), followed by the highest form of measurement, the ratio scale (equal intervals, interpretable numerical values, plus a fixed and more or less meaningful zero point).¹¹

In this regard quantitative analysis offers invaluable advice. We must be attentive to diversity with more fine-grained scaling. Hence, it is more logical to treat conceptual sets as *fuzzy-sets*. Rather than classifying cases as either fully out (0) or fully in (1) of the conceptual set ‘democracies’ as with *crisp-sets*, with *fuzzy-sets* we assign cases with a *degree* of membership from fully out (0) or fully in (1). For example, Norway might have hypothetical membership score to the set ‘democracies’ of .9, where Mexico might come in around .7. Furthermore, in fuzzy-set analysis we assign a membership score to the outcome of interest as well, in this case civil war. What we produce is a set-theoretic scale that has equal intervals, interpretable numerical values, a fixed and meaningful zero point, but also as fixed and meaningful maximum score. “In this light it could be argued that fuzzy-set membership is a *higher* form of measurement than the conventional ratio scale.”¹² However the strength of set-theoretic scales, as we will see, depends completely upon theoretically informed calibration.

Adopting a fuzzy-set membership scale is superior to a ratio scale in at least two regards. First, fuzzy-set membership scales are more in tune with conceptual formations.¹³ Say we have a series of traditional ratio scale scores of GDP. The findings from a regression analysis of this series may show that indeed lower the GDP, the higher the likelihood of civil war. However, it is possible that these findings are only reflective of the range of data, rather than the concept low economic performance? If we want to analyze the effect of low economic performance on the outcomes of civil war from a fuzzy-set approach we have to consider at least three important ‘conceptual anchors’ in the fuzzy-set membership scale.¹⁴ What is the GDP score that corresponds to the

¹¹ Ragin (2000) p.154

¹² Ibid, p. 155

¹³ Ragin (2000) (2008)

¹⁴ Ibid.

conceptual anchor of full membership (1), neither fully in nor fully out (.5), fully out (0) of the set ‘countries with low economic performance?’¹⁵ What scaling this way could reveal is that while on a ratio scale our distribution of cases have a wide range of scores, on a conceptually aligned fuzzy-set scale it may actually be a fairly limited range of data we are looking at. Conclusions about the net-effects of variables in ratio scales are reflective of the range of data, not the conceptual range. In essence a fuzzy-set scale maps data points relative to a concept, rather than simply relative to each other.

A second, but related, advantage of fuzzy-set membership scales is that they truncate irrelevant variation. For example, the complete range of variation in a ratio scale dataset of GDP when converted to a fuzzy-set membership score to the set could theoretically represent only a portion of the possible conceptual variation. Ragin makes this point well in saying:

...there is a world of difference between living in country with a gross national product (GNP) per capita of \$2,000 and living in one with a GNP per capita of \$1,000; however, there is virtually no difference between living in one with a GNP per capita of \$22,000 and living in one with a GNP per capita of \$21,000. Such fine points are rarely addressed by researchers who use the conventional indicator approach, but they must be confronted directly in research that uses calibrated measures...¹⁶

Fuzzy-set membership scales are unique in that they rely on being well informed by theory. A poor theoretical foundation behind the calibration of the conceptual anchors in the scale will result in questionable findings. Good examples of calibrated scales exist in “the field of poverty research, where the task of establishing external standards (i.e. defining who is poor) has deep policy relevance. Another example of a calibrated measure is the Human Development Index developed by the United Nations...”¹⁷

When scales are well aligned with theoretical formations each case in the dataset is not merely a raw number, but rather a score infused with, and informed by, theoretical

¹⁵ There are precise formulas for converting scales, but here the point is more highlight the specific conceptual differences between scales rather than the specific operations of conversion.

¹⁶ Ragin (2008) p. 75, footnote 3

¹⁷ Ibid, p. 72, footnote 1.

information.¹⁸ With this in mind we can see that fuzzy-set analysis indeed relies upon preceding qualitative work to establish theoretical and conceptual starting points; and thus it is best understood as a bridging tool between qualitative and quantitative inquiry. However, the most significant bridging contribution of set-theoretic thinking is that it manages to bring the deterministic language of necessary and sufficient conditions into large-*n* study.

Necessary and Sufficient Conditions in Sets

As discussed in Chapter Two, the language of necessary and sufficient conditions is an integral part of understanding the causal logic of determinism; which must be our starting logic if we hope to produce a truly plural methodological study. There are three key reasons why studying necessary and, in turn and sufficient, conditions is a fruitful path in the social sciences. First, “If a theoretically relevant causal conditions is necessary, then it is present in all instances of an outcome. Any causal conditions that is this general is worthy of the focused attention of social scientists. Necessary condition provide signposts and can bring clarity to large bodies of social science thinking.”¹⁹ Second, necessary conditions in the context of the study of civil war can have very real and powerful policy implications. Ragin highlights this with an example:

Imagine, for example, that a researcher successfully identifies a necessary condition for ethnic conflict. If political leaders can manipulate this condition, perhaps eliminate it altogether, then they may be able to prevent ethnic conflict. Any social scientist interested in social intervention, especially preventive measures, therefore, should have a strong interest in identifying necessary conditions.²⁰

Thirdly, necessary and sufficient conditions have a long tradition in qualitative social science research. Even if not directly stated in the language of necessary and sufficient conditions, strategies utilizing this logic are the backbone of analytic

¹⁸ Ragin (2000) (2008)

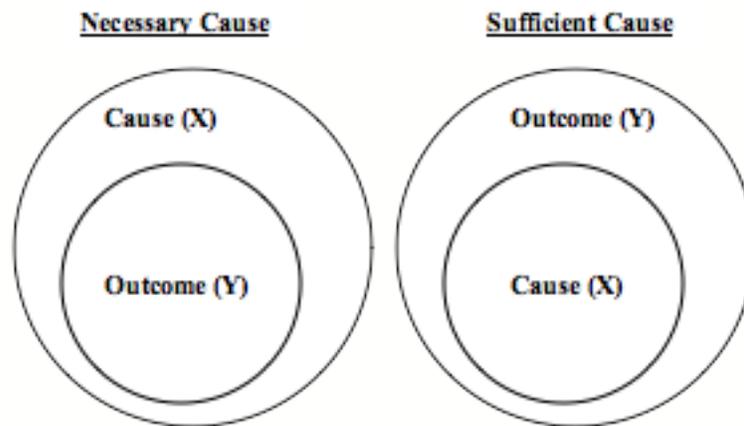
¹⁹ Ragin (2000) p. 203

²⁰ Ibid.

induction.²¹ For example, John Stuart Mill’s “method of agreement” and “method of difference” are essentially a search for necessary and sufficient conditions.²² Mahoney points out further: “the methods of agreement and difference, typological methods, counterfactual analysis, Boolean algebra, and fuzzy-set analysis – understand causes using ideas of necessity and/or sufficiency.”²³

What can fuzzy-set analysis offer to the effort to understand and evaluate the necessary and sufficient conditions for civil war? In the previous section we made a discussion of the basic subset-superset relationship. However, we were vague about how this relates to causation. In reviewing figure 4.4 we can posit that the relationship between subsets and supersets is logically identical to that between necessary conditions, sufficient conditions, and outcomes.

Figure 4.4



Necessary Conditions: (Y) is a subset of (X)

If (X) is a necessary cause of outcome (Y), then the presence of outcome (Y) necessarily implies the presence of cause (X). However, the presence of cause (X) alone does to imply the presence of outcome (Y). In other words, with a necessary causal condition there is the possibility of other outcomes besides the one specified resulting from the causal condition.

²¹ Ragin (2000) (2008)

²² Mill [1843](1967)

²³ Mahoney *et al* (2008) p. 117

Sufficient Conditions: (X) is a subset of (Y)

If (X) is a sufficient cause of outcome (Y), then the presence of cause (X) necessarily implies the presence of outcome (Y). However, inverse to necessary conditions, the presence of outcome (Y) does not imply the presence of cause (X). In other words, with a sufficient causal condition there is the possibility of other causes besides the one specified leading to the outcome.

Simultaneously Necessary and Sufficient Conditions:

This is the gold standard of causal conditions.²⁴ (X) implies (Y), and (Y) implies (X). This would be visualized as two perfectly overlapping circles. If we consider the size of the circles in these Venn-diagrams as representative of the number of cases in a crisp-set analysis that hold the cause (X) and the outcome (Y) then we have a useful heuristic. As the number of cases in (X) and the number of cases in (Y) come closer to being in perfect proportion (i.e. a perfect correlation) the “more necessary” or “more sufficient” a causal relationship becomes.²⁵ In this we can foreshadow how set-theoretic thinking can incorporate an element of probabilistic logic; a point we will return to later in the chapter.

With this deeper understanding of the link between set-theoretic thinking and necessary and sufficient conditions we can reflect back on the feasibility thesis again. In figure 4.3 we see that the maxim of the feasibility thesis “where a rebellion is feasible it will occur...”²⁶ is proposed as a statement of causal sufficiency. Cases of the cause (X) feasibility should exist wholly within cases of the outcome (Y) rebellion. In this statement feasibility necessarily implies rebellion, but rebellion *does not* necessarily imply feasibility; there may be other distinct causal pathways to rebellion. Later in the chapter this will prove a key insight to understanding why the feasibility thesis is inadequate as a predictive model of the causes of civil war.

However, if we are to remain attentive to the diversity of types of cases and causes within cases (avoiding sample homogenizing assumptions) then we will possibly never find a perfect subset-superset relationship. The social world is one of extreme

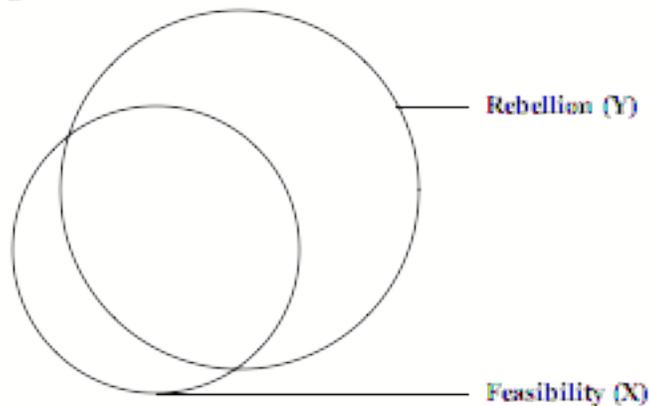
²⁴ Brady and Collier (2009), Mahoney *et al* (2008), Ragin (2000) (2008).

²⁵ Mahoney *et al* (2008)

²⁶ Collier *et al* (2009) p. 24

complexity and diversity. There may be typological distinctions in cases we do not yet see. There may be relevant causal variables we do not yet know. Most of all, we as researchers are prone to error in measurement, calibration, and analysis. We are much more likely to find distributions of set-configurations that form imperfect sets. Figure 4.5 shows a hypothetical imperfect set relationship for the feasibility thesis. Notice that the four possible combinations of sets (X) and (Y) in figure 4.5 correspond to the four possible cells in table 4.1.

Figure 4.5



However, as we pointed out earlier, causes and outcomes cannot be so neatly placed in dichotomous crisp-sets. That being said, explicating crisp-set concepts and functions is an essential steppingstone for understanding their fuzzy-set counterparts. Before going on to make an in-depth hypothetical example of fuzzy-set analysis there is one more conceptual distinction that we must explicate: configuration versus variable oriented thinking. Understanding configurational thinking will add invaluable depth to our understanding of the process and outcomes of fuzzy-set analysis.

Sets as Configurations

So far we have been describing sets as the relationship between a single cause and a single outcome. However, more often than not cross-case analyses in the social sciences focus on evaluating the effects of numerous causes on outcomes. It is rare that we will

ever find singular causal variable that explains an outcome across numerous cases. Rather, we are likely to be focused on examining the complex interaction of variables on outcomes. This is true even in the feasibility thesis, which looks at 14 different variables that comprise the “feasibility” condition.

Understanding causation in terms of configurations is in line with our intuitive understanding of how things happen. Most of us naturally think of the causes of war as a combination, or configuration, of conditions that interact to produce an outcome. We naturally understand these various conditions as interacting with, and often dependent on, each other. Ragin coins the term “causal recipes– the causally relevant conditions that combine to produce a given outcome” and goes on to say that “To think in terms of recipes is to think holistically and to understand causally relevant conditions as intersections of forces and events.”²⁷ This connects well back to Chapter Three’s focus on context; as we can easily think of configurations of conditions as synonymous with layers of context.

While this intuitive sense of the interrelatedness of causes in their effect is central in almost all theory in the social sciences, this is not the type of causal relationship that the vast majority of quantitative cross-case analysis looks at.

Most applications of conventional quantitative methods assume that the effects of the independent variables are both *linear* and *additive*, which means that the impact of a given independent variable on the dependent variable is assumed to be the same regardless of the values of the other independent variables. Estimates of net effects assume that the impact of a given independent variable is the same not only across all the values of other independent variables but also across all their different combinations.²⁸

It is important to take a moment to further expand on the points of the linear and additive nature of causation in most quantitative analyses. The assumption of linear causation means that variables do not interact with each other. There is a direct line of causation (hence linear) from each independent variable to outcome. In alignment with the assumption of linearity, the additive nature of this sort causation comes from that fact

²⁷ Ragin (2008) p. 109

²⁸ Ibid, p. 112 (emphasis added)

that in the analysis of net effects of independent variables low scores on one independent variable can in a sense be compensated for by higher scores in another. Variables add up (additive) to cause an outcome.

Let us explore how these characteristics of cross-case quantitative analyses manifest themselves in the feasibility thesis. As stated, the condition ‘feasibility’ is actually a combination of 14 independent variables. Each of these independent variables has a linear relationship to the condition ‘feasibility’. The score on any one variable operates independent of all the others. Collectively these variables add up to the condition ‘feasibility’. However, since this causal model is additive we may find that individual cases that score positive in the condition of ‘feasibility’ may have radically different compositions of scores on the 14 independent variables that make up the condition; again, low scores in some variables can in a sense be made up for by high scores on others.

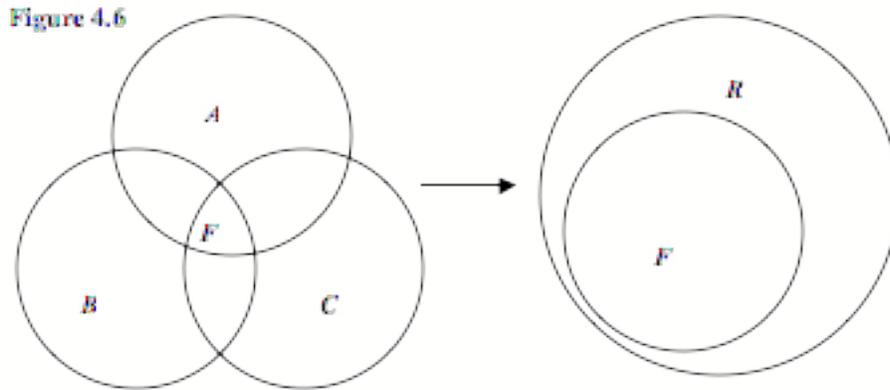
In this sense the condition ‘feasibility’ may actually be constituted by multiple distinct configurations of independent variable scores that could represent the presence of distinctly different causal logics; and in turn different case types. That is to say, there may be several distinct causal combinations within the condition ‘feasibility’ that may warrant examination as separate kinds of cases with their own distinct causal logic. However, through the focus on the analysis of net-effects most statistically based quantitative approaches are blind to the possibility of distinct configurations. “The challenge posed by configurational thinking is to see causal conditions not as adversaries in the struggle to explain variation in dependent variables but as potential collaborators in the production of outcomes.”²⁹

Taking this step of thinking about just what constitutes the condition ‘feasibility’ is important in thinking about the set relationships we have described thus far. If we think of the independent variables that make up feasibility each as sets, then the condition ‘feasibility’ is the intersection of these sets. This relationship is displayed for three hypothetical variables in figure 4.6.³⁰ Hypothetical sets **A**, **B**, and **C** are intersecting

²⁹ Ragin (2008) p. 113-114

³⁰ For the purposes of easily visualizing this point it is useful to only use three intersecting sets. It is mathematically impossible to use Venn-diagrams to explore all of the possible set combinations with more than three sets. This limit can be expanded to 5 sets by using Euler-diagrams (using ellipses instead of circles). However, beyond these limits intersections must be displayed numerically in truth tables; as the

supersets of **F** (feasibility). Thus **A**, **B**, and **C** are collectively necessary conditions for **F** (feasibility), which in turn is sufficient for the outcome rebellion (**R**). The causal conditions that make sets **A**, **B**, and **C** are known in this formation as INUS causes. INUS is an acronym coined by John Mackie that means that a cause is “an *insufficient* but *necessary* part of a condition which is itself *unnecessary* but *sufficient* for the result.”³¹



Because net-effects analysis cannot be attentive to the effects of distinct configurations of variables, but rather focuses on the collective average effect of independent variables, we are likely to find that “at the population level, causation occurs almost exclusively through INUS causes.”³² Mahoney summarizes these points well in saying:

There are countless ways to arrive at an outcome (i.e. a particular range of values on the dependent variable) in an additive linear model. Each independent variable exerts its own effect, and each independent variable can potentially compensate for any other. One case may have the outcome of interest because it has high values on certain variables, whereas a different case arrives at the same outcome because it has high values on other variables. No value is necessary, but different variable values (in conjunction with the error term) are sufficient to produce the outcome. Equifinality is thus omnipresent in mainstream population-oriented research.

number of possible crisp combinations increases exponentially. To calculate the number of possible combinations use (2^k) ; where k is the number of sets.

³¹ Mackie (1965) p. 246. For a further discussion of INUS causes, and the also possible SUIN causes, see Mackie (1980), Mahoney (2008), and Mahoney *et al* (2008).

³² Mahoney (2008) p. 423

Essentially, though thinking about INUS causes in the feasibility thesis is a step towards configurational thinking and attention to diversity; this step is ultimately undermined by the linear and additive nature of causation in most quantitative cross-case analysis. We need to be attentive to the interaction and configuration of causes that lead to civil war. With these goals in mind we can go on to show powerful insights that fuzzy-set analysis can offer through a hypothetical example.

Fuzzy-set Analysis: A Hypothetical Example

In this section we present a *hypothetical* example of some of the functions of fuzzy-set analysis, as it is a fairly new method that many are unfamiliar with. An in-depth survey of all of the methodological points of fuzzy-set analysis is inappropriate for this section, as the point is to display fuzzy-set analysis's attention to context and diversity in the study of the causes of civil war rather than to explicate every step in the process. For those interested in a complete guide to fuzzy-set analysis see Ragin's 2000 and 2008 works. Likewise, a true empirical example is also outside the scope of this chapter; the secondary purpose of which is to display the promise of fuzzy-set methods as a bridging tool between qualitative and quantitative methods in the study of the causes of civil war.

Before we can even begin to think about analyzing data with fuzzy-set methods there are three difficult tasks that we must face; selecting cases, selecting variables, and assigning fuzzy-set membership scores.³³ As discussed in Chapter Two, case selection is a central concern for all those social scientists interested in cross-case analysis. The *modus operandi* of regression analysis and most other statistically based quantitative analysis is to include as much variation on the independent and dependent variables as possible. This is essential in building a representative sample and accurately calculating the net-effects of causes on outcomes. However, as we have made clear, our starting point cannot be in probabilistic logic. To be able to translate findings between methods of inquiry, while maintaining logical consistency in the goal of a truly pluralist approach, we must begin with a deterministic logic.

³³ Ragin (2000)

Again, as pointed out in Chapter Two, when we adopt a deterministic causal logic much of the variation in the sample of a regression can become irrelevant. If not by including variation then how should we constitute our sample? In reflecting on the role of necessary and sufficient conditions in causation we can logically conclude that *all necessary causal conditions for an outcome will exist wholly within cases of the outcome*.³⁴ Therefore cases that do not display the outcome become irrelevant for immediate analysis. The cases in our analysis of a necessary condition would all share the same outcome, however may vary on the causal configurations that are tested against that outcome. Alternatively, the appropriate sample for analyzing sufficient conditions is exclusively within one specific configuration of causal conditions; i.e. all cases would share the same configuration of causal conditions but the outcome would vary.

When we begin a study we may not yet know which causal conditions, or configuration of conditions, are important for the outcome, thus starting our examination with the search for sufficient conditions is inappropriate. We must begin our exploration with the search for necessary conditions. With this step we break one of the most central rules of constituting populations in traditional quantitative analysis; we are selecting cases on the dependent variable.³⁵

With the initial goal of accessing the necessary conditions for an outcome we must shift our focus to the outcome itself. What exactly are we looking to explain? If we reflect on the feasibility thesis the goal is to explain the outcome ‘rebellion’. Our first step would be to select all probable cases for inclusion in the outcome set ‘rebellion’. This may seem a simple task, since the feasibility thesis simply takes all cases of civil war since 1945, regardless of typological diversity, as cases of rebellion. However, if our goal is truly to understand the outcome rebellion rather than all cases of civil war, then we must only compare analytically equivalent cases.³⁶

In this regard set-thinking can aid us in our attention to typological diversity. Rebellion is a typological subset of civil war. Ethnic conflict, illicit-market profiteering, extra-systemic conflict, and many others may also represent distinct subsets of civil war. Sets can overlap and thus cases can have more than one membership. Attention to

³⁴ Ragin (2008)

³⁵ See Brady and Collier (2009), Freedman (2009), King *et al* (1994), and Ragin (2000)(2008).

³⁶ Ragin (2000)(2008)

theoretical and typological distinctions between cases is the central means by which we must constitute a population. If we want to understand the necessary causes of rebellion, then from a deterministic logic we must only compare cases of rebellion. From the perspective of all approaches adhering to a deterministic model of causation, comparing all cases of civil war to make a conclusion about the typological subset ‘rebellion’, as the feasibility thesis does, is a careless misstep.

Why this step is taken is debatable. Cynics might conclude that drawing no typological distinctions between varieties of civil war, assessing them all as cases of the ‘same thing’, is a blatant effort to increase the n of a study and thus inflate its findings. However, we need not be so harsh, the datasets from which the feasibility thesis is built only include limited typological distinction themselves and were not designed with recently developed set-theoretic approaches in mind.³⁷ Remaining attentive to the theoretical and typological distinctions between cases is no small task. However, it is in the interest of all those scholars involved in the study of the causes of civil war to do so.

Building the qualitative foundations on which the specifications of quantitative comparisons are based may involve the focused effort of many researchers over many years. As researchers we want to address important questions now. Hence, as we saw in Chapter Two, there is a tendency to “substitute intellectual capital for labor.”³⁸ Good cross-case analysis is only as strong as its theoretical foundations built in qualitative study. In a truly plural approach to the study of the cause of civil war, and social scientific inquiry as a whole, our focus must be on extrapolating the theoretical findings from within-case analysis to cross-case analysis.

The same theoretical and typological foundations that we use in selecting cases will guide us in our second goal of choosing what set relationships to analyze. Suppose that we have successfully identified a subset of 20 cases of rebellion within the larger set of all 150-odd cases of civil war since 1945. The qualitative analysis of these individual cases and the resulting theory might indeed point to three key conditions under which rebellion occurs; weak democracy, plentiful lootable income for rebels, and plentiful hiding for rebels. Note that for convenient comparison these are three conditions that are

³⁷ These datasets come from the University of Michigan’s Correlates of War Project (COW) and the Uppsala University Conflict Database Project (UCDP).

³⁸ Freedman (2010) p. 46

included in the feasibility thesis as extent of political rights (polity IV index), primary commodity export value, and the proportion of mountainous territory. However, here these raw variables are reformed here as conceptually aligned sets.

Our third step, before data analysis even begins, is to give each case a membership score in each set. There are several ways in which we may calibrate sets. We need to specify the corresponding characteristics at which cases meet the requirements for at least the three key conceptual anchors in our fuzzy-set scale; fully out (0), neither fully in or out (.5), or fully in (1). Finer grained scales that include more anchors are dramatically better, but these three anchors are the minimum. However, there is much qualitative and quantitative work available on subjects like democracy, for example, and simply rescaling another appropriate measure of democracy may prove useful in assigning membership to the set ‘weak-democracies’.³⁹ Success in this third step of pre-analysis is again dependent on the strength of the theoretical foundations in qualitative studies from which we can draw. To repeat a previous point, fuzzy-set scores are more than just data points, they are infused with theoretical knowledge. Table 4.2 presents the hypothetical scores for 20 cases in these three conceptual sets plus the outcome rebellion.

³⁹ For a lengthy discussion of scaling, calibration, and the specific procedures for scale conversion to fuzzy-sets see Ragin (2008) chapters four and five.

Table 4.2

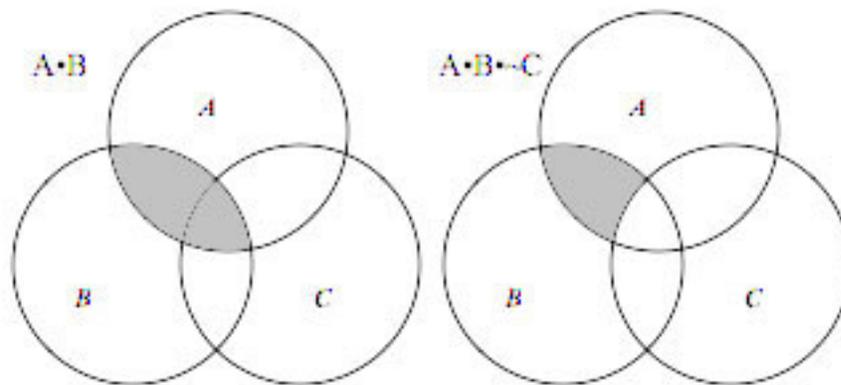
CASE	A - Weak Democracy	B-Plentiful Lootable Income	C - Plentiful Hiding for Rebels	R- Rebellion
1	0.6	0.5	0.9	0.9
2	0.8	0.6	0.1	0.7
3	0.6	0.6	0.5	0.8
4	0.5	0.7	0.8	0.5
5	0.4	0.7	0.3	0.6
6	0.9	0.8	0.7	0.8
7	0.6	0.6	0.4	0.7
8	0.6	0.8	0.5	0.7
9	0.6	0.5	0.6	0.9
10	0.7	0.8	0.8	0.9
11	0.6	0.8	0.6	0.8
12	0.8	0.6	0.9	0.9
13	0.6	0.7	0.5	0.7
14	0.9	0.9	0.6	0.6
15	0.7	0.6	0.8	0.6
16	0.8	0.4	0.3	0.8
17	0.7	0.6	0.5	0.8
18	0.7	0.5	0.4	0.7
19	0.9	0.7	0.1	0.9
20	0.6	0.8	0.9	0.6
TOTAL	13.6	13.2	11.2	14.9

Now that we are armed with a theoretically informed dataset we can begin to analyze with special attention to configurations and diversity. However, going forward there some points of fuzzy-set analysis that need brief explanation; one such concept is negation. When we go on to look at cases' membership to multiple sets we have to be able to calculate scores in negative, or inverse sets. For example, in table 4.2, case 1 has a score of .6 in the set 'weak-democracies', however it then it also has a negated score in the inverse set '*not* weak democracies'. The simple equation for calculating this score is $\sim A_i = 1 - A_i$ (where \sim indicates the negative set and the subscript i refers to the individual cases). A lengthy discussion of the importance of negation can be found in Ragin's work but for now we can suffice to say that negation is important when we begin to look at configurations of sets.⁴⁰ If we want to calculate a case's membership in the intersection of the three sets $A \bullet B \bullet C$ (where \bullet is the logical and) from table 4.2 then we need three scores.

⁴⁰ Ragin (2000)

Likewise when we want to calculate a case's membership in the intersection of only $A \cdot B$ we also need a score of membership in set $\sim C$. In referring to the two Venn-diagrams in figure 4.7 below we can easily understand the importance of this distinction. The intersection of sets $A \cdot B$ in the first Venn-diagram is distinct from that of $A \cdot B \cdot \sim C$ in the second Venn-diagram. $A \cdot B$ naturally may include some overlap with C . If we want to talk only about what happens in $A \cdot B$ outside of the effect of C we need to know the negative score for $\sim C$.

Figure 4.7



Now with a functional understanding of negation in place we can begin to look at configurations of set memberships. Take case 1 in table 4.2 for example. If we want to know case 1's membership in the sets intersection of $A \cdot B \cdot C$ then we use the smallest of the three scores for this value, in this case .5. Using the smallest score here avoids the additive causation of most quantitative techniques. The distinction is best understood starting with crisp-set logic. Lets suppose an individual is a full member (1) in the set 'redheads' and is also a full non-member (0) in the set 'musicians'. The individual's maximum possible score in the intersection of these two sets 'redheads who are musicians' is the smaller of the two scores, in this case 0. No matter how redheaded that individual is, it does not make them more of a musician.

This logical relationship holds true in fuzzy-set analysis. No matter how high case 1 in table 4.2 scores on set C – plentiful hiding for rebels (.9) it does not make up for its lower scores on variables A (.6) and B (.5). Likewise, if we want to know case 1's score

in $A \bullet B \bullet \sim C$ our score will be the smallest of the three, in this case .1. With attention to negation and configurations of causes we can begin to see how fuzzy-set analysis avoids the pitfalls of the additive and linear causation outlined earlier. Going forward, we can construct a truth table that shows each case's score in each possible intersection of sets. This truth table is presented in figure 4.3.

Table 4.3

CASE	$A \bullet \sim B \bullet \sim C$	$A \bullet B \bullet \sim C$	$A \bullet B \bullet C$	$A \bullet \sim B \bullet C$	$\sim A \bullet B \bullet \sim C$	$\sim A \bullet B \bullet C$	$\sim A \bullet \sim B \bullet C$	$\sim A \bullet \sim B \bullet \sim C$
1	0.1	0.1	0.5	0.5	0.1	0.4	0.4	0.1
2	0.4	0.6	0.1	0.1	0.2	0.1	0.1	0.2
3	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4
4	0.2	0.2	0.5	0.3	0.2	0.5	0.3	0.2
5	0.3	0.4	0.3	0.3	0.6	0.3	0.3	0.3
6	0.2	0.3	0.7	0.2	0.1	0.1	0.1	0.1
7	0.4	0.6	0.4	0.4	0.4	0.4	0.4	0.4
8	0.2	0.5	0.5	0.2	0.4	0.4	0.2	0.2
9	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4
10	0.2	0.2	0.7	0.2	0.2	0.3	0.2	0.2
11	0.2	0.4	0.6	0.2	0.4	0.4	0.2	0.2
12	0.1	0.1	0.6	0.4	0.1	0.2	0.2	0.1
13	0.3	0.5	0.5	0.3	0.4	0.4	0.3	0.3
14	0.1	0.4	0.6	0.1	0.1	0.1	0.1	0.1
15	0.2	0.2	0.6	0.4	0.2	0.3	0.3	0.2
16	0.6	0.4	0.3	0.3	0.2	0.2	0.2	0.2
17	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.3
18	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3
19	0.3	0.7	0.1	0.1	0.1	0.1	0.1	0.1
20	0.1	0.1	0.6	0.2	0.1	0.4	0.2	0.1
Scores >.5	1	2	7	0	1	0	0	0

In this example calculating all the case scores is simple as there are 2^k possible combinations of sets possible (where k is the number of sets). Thus, with our 3 sets we will have 8 (2^3) possible combinations. In reflecting on the eight possible combinations of the three sets in table 4.3 there are two considerations that we must take into account before further analysis. First, we need to consider a *membership threshold*. At what membership level do we consider a case as scoring positive in a set configuration? A

sensible starting place to set the bar is at $>.5$. For example, In the first column of table 4.3 ($A \bullet \sim B \bullet \sim C$) we can observe that only one case falls above the $>.5$ specification.

Researchers can start with $>.5$ threshold and review how this set relationship is reflected in each specific case. Perhaps the researcher may decide to raise the threshold for membership. This is yet another point in which data in a fuzzy-set analysis has direct interaction with empirical cases and theory, as this decision must be theoretically informed and reflective of within-case logic.

The second threshold that we must consider is a *frequency threshold*. That is, how many cases that score above the membership threshold have to occur before we will pursue further analysis on that set configuration? In column one of table 4.3 only one case falls above our $>.5$ membership threshold. Thus the set configuration in column one may not constitute a valuable path of inquiry. Choosing a frequency threshold must be a deliberate and informed choice as needless to say it will have a decisive impact on our findings.⁴¹ In our hypothetical example we will set our frequency threshold at 5 cases. With these thresholds set we can see that there is only one configuration in table 4.3 that satisfies our specifications; column three ($A \bullet B \bullet C$). Though, for the sake of simplicity, in our example here only this one set configuration meets our threshold specifications it is important to note that one of the key strengths of fuzzy-set analysis at this juncture is its ability to identify multiple causal configurations that can often lead to the outcome of interest. It is fuzzy-set analysis's attention to configurations that sidesteps the problem of linear causation, and the possibility of multiple configurations leading to the outcome that dodges the problem of additive causation.

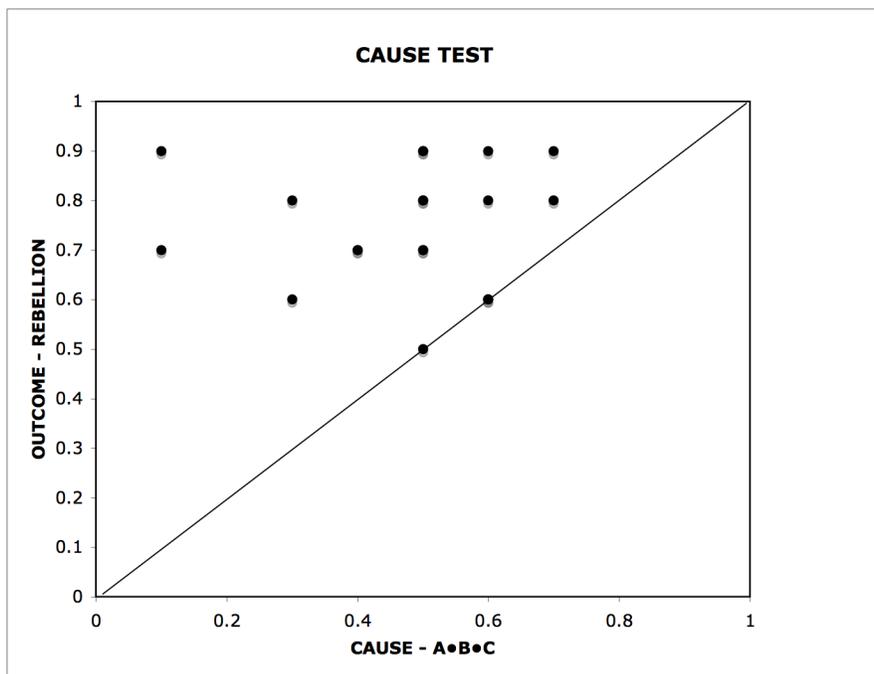
The next step is to take the causal configuration scores for each case from column three ($A \bullet B \bullet C$) and plot these against their corresponding score in the outcome rebellion. These results are shown in an x-y scatter-plot in figure 4.7; the corresponding data to this plot are in table 4.4.

⁴¹ Addressing the vast range of choices involved in selecting membership and frequency thresholds is beyond the scope of this chapter. For a detailed discussion of all the considerations to take into account when choosing membership and frequency thresholds refer to Ragin (2008) chapter 7.

Table 4.4

CASE	A•B•C (X- Feasibility)	R- Rebellion (Y)	[MIN (X,Y)]
1	0.5	0.9	0.5
2	0.1	0.7	0.1
3	0.5	0.8	0.5
4	0.5	0.5	0.5
5	0.3	0.6	0.3
6	0.7	0.8	0.7
7	0.4	0.7	0.4
8	0.5	0.7	0.5
9	0.5	0.9	0.5
10	0.7	0.9	0.7
11	0.6	0.8	0.6
12	0.6	0.9	0.6
13	0.5	0.7	0.5
14	0.6	0.6	0.6
15	0.6	0.6	0.6
16	0.3	0.8	0.3
17	0.5	0.8	0.5
18	0.4	0.7	0.4
19	0.1	0.9	0.1
20	0.6	0.6	0.6
SUM (Σ)	9.5	14.9	9.5

Figure 4.8



What we see in the scatter-plot in figure 4.8 is a very interesting relationship. All membership scores on the x-axis (causal configuration **A•B•C**) are less than or equal to those on the y-axis (outcome rebellion). In the eyes of a statistician this dataset may display strong characteristics of heteroscedasticity that would need correction.⁴²

However, in a set analysis what we see is a clear sufficient condition relationship. When we translate this scatter-plot into a proportionate Venn-diagram this relationship is more obvious (see figure 4.10). Feasibility, (**X**) (the intersection of **A•B•C**), is a perfect subset of rebellion (**Y**). Inversely, if we were to see a necessary condition relationship all scores on the cause would be greater than or equal to the outcome. Instead of all the data-points being on or above the central dividing line of the x-y scatter-plot, they would all be on or below it.⁴³ Also, the set relationship in the corresponding Venn-diagram would be inverted.

Our task now is to analyze the concepts of consistency and coverage. Consistency is what proportion of the causal configuration overlaps with the outcome; inversely coverage is what proportion of the outcome overlaps with the causal configuration. Just as with multiple sets of causal conditions we measure the intersection of cause **A•B•C** (**X**) and outcome ‘rebellion’ (**Y**) by selecting their minimum set membership (MIN), this is reflected in column three of table 4.4. With these three columns calculating consistency and coverage is straightforward.

$$\text{consistency} = \sum[\text{MIN}(X_i, Y_i)] / \sum(X_i)$$

$$\text{coverage} = \sum[\text{MIN}(X_i, Y_i)] / \sum(Y_i)$$

Thus, consistency is the sum of the minimum memberships of individual cases in **X•Y** divided by the sum of case memberships in **X**. Or in other words: consistency = the intersection of cause and outcome divided by the cause. Coverage is the intersection of cause and outcome divided by the outcome. In our hypothetical dataset the consistency is

⁴² Ragin (2000)

⁴³ In the case of our example all of the data neatly fits above the central dividing line, however it can often be the case that the relationship between cause and outcome is not perfect. Ragin (2000)(2008) outlines procedures for injecting some probabilistic logic into the analysis by considering what proportion of the causal configuration scores below the outcome and even explicating procedures for adjusting the central dividing line similar to the way a statistician adjusts an error term.

1.0, that is to say 100% of the cause set intersects with the outcome set. This perfect subset relationship is displayed in a proportionate Venn-diagram in figure 4.10. However, despite the high consistency, coverage comes in at .64; only 64% of the outcome set intersects with the cause set.

Figure 4.9

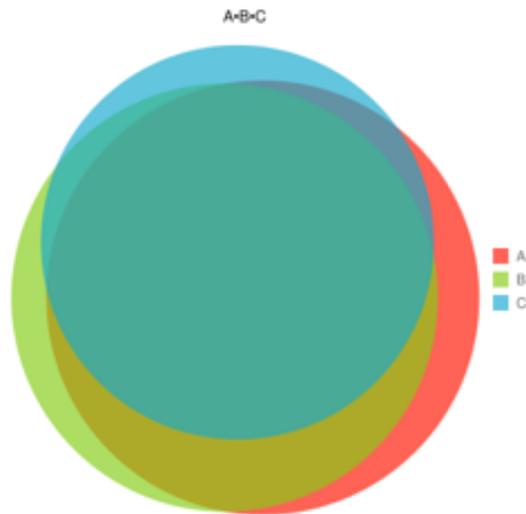
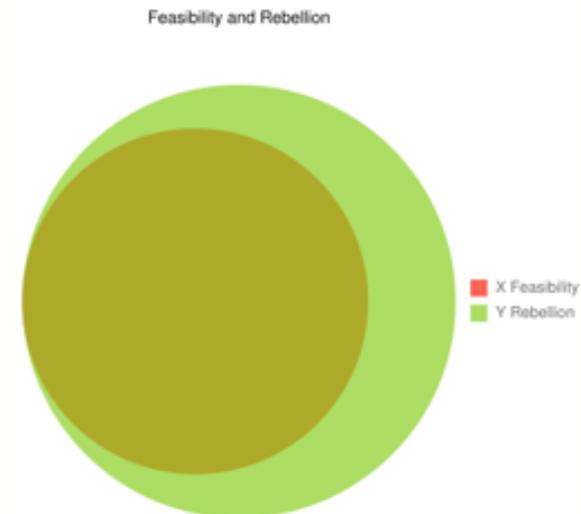


Figure 4.10



It is important to be clear about what these findings mean, because it is at this juncture that fuzzy-set analysis begins to incorporate elements of probabilistic logic that lend to its bridging function between qualitative and quantitative methods. What we can essentially observe in this hypothetical example is that in 64% of conceptual space of rebellion (**Y**) the causal configuration **A•B•C (X)** is a sufficient cause. Of that 64% of the conceptual space, the condition **A•B•C (X)** is 100% necessary. This does not mean that 64% of cases of rebellion have the condition feasibility (this percentage would be lower). Rather what we are seeing is that 64% of the conceptual space of rebellion always has the causal configuration of feasibility. It is important not to misinterpret these findings at this step.

In a crisp-set analysis there is a direct correspondence between the proportion of cases with a cause or outcome and the proportion of the concept represented in the set because membership scores are dichotomous. However in a fuzzy-set analysis a case can

‘have’ a cause or outcome, but have it at a less than full level. So what we are measuring is conceptual overlap between the two sets; cause and outcome.

Sets **A**, **B** and **C** are each “an *insufficient* but *necessary* part of a condition which is itself *unnecessary* but *sufficient* for the result.”⁴⁴ This hypothetical example of fuzzy set analysis distinctly mirrors the INUS causal structure of the feasibility thesis, while at the same time sidestepping the problematic nature of linear and additive causation that is typical of most statistically inclined approaches to quantitative cross-case analysis. If we reflect on figure 4.6 we can see that figure 4.9 and 4.10 combine to present an identical causal structure that is proportionately representative of our hypothetical dataset. These results have a direct conceptual correspondence to the empirical cases that constitute the dataset; rarely the case in regression based statistical methods.⁴⁵ Ragin summarizes this point well:

One of the most important aspects of configurational thinking is that it links directly to cases, causal processes, and causal mechanisms. That is, usually a direct correspondence exists in configurational work between [cross case] causal arguments and case-level analysis. The argument that a specific combination of conditions generates some outcome directs attention not only towards specific cases... but also towards specific features of cases... Ultimately, causation can be observed only at the case level; a combinational argument provides explicit guidance regarding what to observe in an empirical case and very often also implies specific causal mechanisms that both link the different ingredients together and indicate the nature of their connections to the outcome.⁴⁶

These hypothetical findings present us with the immediate task of explaining the remaining 36% of the outcome set that were not covered by the INUS condition **A•B•C**. To explain this conceptual space we must go back to the qualitative case studies that informed our dataset in the first place to see what insight our newly posited causal configuration offers to their analysis. What inconsistencies do we see in the 36% of the set that does not fit with the causal configuration from our analysis? Looking at specific cases is essential in remaining attentive to diversity. Perhaps we will discover a new set

⁴⁴ Mackie (1965) p. 246

⁴⁵ For an especially good discussion of why some greed based explanations to the causes of civil war, while statistically significant in their findings, fail even as postdictive models see Ward *et al* (2010).

⁴⁶ Ragin (2008) p. 112 (brackets added)

membership to consider in further analysis; made only visible by the light of our findings. Perhaps we will discover inconsistencies that demand recoding of the dataset and re-analysis. Furthermore, it is also essential to view those cases consistent with the posited configuration as it can lend further nuance in light of our findings. The point is that because set-theoretic analysis is geared towards attention to diversity and it, ideally, engages in a continuous dialogue between ideas and evidence.

This hypothetical fuzzy-set analysis offers further useful insight in regard to recent scholarly work on the foundations of the feasibility thesis. Ward, Greenhill, and Bakke show that Collier and Hoeffler's 2004 regression (that would later inform the feasibility thesis) actually gains very little predictive power by adding more variables into its regression.⁴⁷ Essentially by deleting the three, of the total 11, most individually correlated variables to civil war the regression model becomes less predictive within its own sample than a model consisting only of the most strongly correlated variable. This exercise is duplicated for out of sample prediction, showing that only two variables need to be deleted for the minimalist single variable model to be more predictive. Though including more variables greatly increases statistical significance in Collier and Hoeffler's model it does not strongly increase its predictive power. What does our set analysis offer to explain these features?

Though Ward, Greenhill and Bakke do not make an analysis of the feasibility thesis, reflecting on figure 4.9 is useful for thinking about their findings here. In our hypothetical analysis we have focused on the intersection of sets $A \cdot B \cdot C$ in figure 4.9. However, in this regard what may be most interesting is not the intersection of these three sets, but their individual raw coverage; i.e. the part of each set that does not overlap with any other. Because Collier and Hoeffler's 2004 regression assesses additive causation and the variables in the model are highly correlated to not only the outcome but to each other as well (overlapping), they bring little raw (non-overlapping) explanatory leverage into an additive model. In other words, if we were to *add* up the "causal force" that each variable brings to Collier and Hoeffler's model, there may be very little that each variable contributes that isn't explained in the overlap with the other variables. The additive assessment of variables, that from a set perspective are highly overlapping, may help us

⁴⁷ Ward *et al* (2010).

understand why models like Collier and Hoeffler's tend to over-predict civil war.⁴⁸ In a sense Collier and Hoeffler are counting the effects of the overlapping leverage between their variables multiple times. By assuming a linear and additive model they are effectively blind to the overlap between variables.

As a brief thought experiment; what would we be able to conclude from an additive assessment of figure 4.9 if instead we saw that sets **A** and **B** existed completely within set **C**? Would a corresponding regression analysis show that while **A** and **B** are both highly correlated to the outcome rebellion, they offer no additional predictive power over a model with only **C**? Exploring this line of thought further would involve an in depth discussion of the set theoretic function of logical simplification.⁴⁹ While far from conclusive, this line of thought could prove a useful path for triangulating Ward, Greenhill, and Bakke's findings and reflecting on the feasibility thesis in the future.

Weaknesses in Set-Analysis

As with all methods in scientific inquiry, set-based analysis does not offer a complete picture of social phenomena but rather a piece of the puzzle. Weighing the insights and weaknesses of multiple modes of inquiry is like aligning the edges of puzzle pieces to find a fit. We have spent considerable time outlining the many strengths of set-based analysis in the study of the causes of civil war, but there are distinct weaknesses that are important to mention. With this we can explore four points.

Firstly, we have argued throughout the length of this piece at an explicit, but also continually implicit, level that a deterministic model of causation depicts the 'real' structures of causation in the world. The viability of set-theoretic approaches to the study of the causes of civil war revolves around this ontological assumption. If we, for example, instead adopt an ontological probabilistic model of causation as the 'real' structure of causation, then the appropriateness of set-analysis and the larger research strategy described here become severely degraded.

⁴⁸ Ibid

⁴⁹ Again, unfortunately a more lengthily discussion of this point is outside the scope of this piece. Please refer to Ragin (2000)(2008).

Second, while we have criticized regression based modes of inquiry for their arbitrary model specifications it may be so that set-analysis provides even more opportunity for errors in sampling, measurement, conceptual alignment, and researcher interpretation. Set-based approaches to social scientific inquiry rely completely on the depth and quality of preceding qualitative work. In this regard set-based analyses are especially prone to error. However, when set-theoretic analysis is “properly employed, i.e., with full transparency... [it] brings greater self-consciousness and honesty to the research process...”⁵⁰ We contend that while the opportunities for error are large, even more so are the opportunities for gain.

Thirdly, there is a more technical problem that also limits set-theoretic analysis’s broader application in the study of the causes of civil war and the social sciences as a whole. As mentioned earlier, the number of possible set combinations increases by an order of magnitude with every new set (variable) we include. If we were to convert all 14 variables from the feasibility thesis into sets we would be looking at 16,384 (2^{14}) possible combinations. Managing and analyzing such a large dataset by hand would be difficult; luckily Charles Ragin and a team of software developers have built the computer software *fs/qca*, which is specifically designed for building and analyzing fuzzy-set datasets.⁵¹

However, this exponential increase in the number of causal combinations to be analyzed creates a fundamental problem. In the study of civil wars, and many other topics of inquiry, we simply will not have enough cases to fit as empirical examples of every possible combination. In the feasibility thesis we can quickly see that even if we assume all cases of civil war since 1945 as cases of the ‘same thing’ we only have about 150 cases to draw conclusions about 16,384 possible causal combinations. Even in our hypothetical fuzzy-set analysis with only 8 possible combinations we saw that half of them had no empirical instance (table 4.3).

If there is no empirical example of a set combination can we conclude that the combination is logically impossible? This is the central theme of the problem of induction. Just because there is no empirical instance of a set combinations does not

⁵⁰ Gerring (2011) p. 311

⁵¹ Ragin *et al* (2007)

mean there will not be in the future. While with four remainders, i.e. cases with no empirical instance, it may be possible to attack this problem through the careful examination of cases with counterfactual reasoning; i.e. we can surmise some combinations as logically impossible. However, even with a small number of remainders this is a challenging prospect. When the number of remainders is in the thousands counterfactual reasoning is clearly beyond our capacity as researchers. To set-theoretic practitioners the question of how to treat logical remainders is known as the problem of limited diversity.

In our hypothetical example we ignored the role of these remainders. However, how we treat logical remainders will have distinct effect on more complex empirical studies. Though, in the fs/qca software there are several options on how to treat these gaps in the data this is a limiting factor to the scope of set-based analyses.⁵² This weakness in set-theoretic analysis is a point where statistically based quantitative methods can play a crucial role in confirming or refuting the decisions we make in our set analyses.

The prospect of identifying multiple distinct causal configurations that drive civil war would give us many clues to what to look for in a regression analysis of more cases and, furthermore, how to better specify regression parameters. In turn, regression based statistical methods can help us reason about logical remainders at a larger n net-effects level. The take away point here should be that set analysis is not an ultimate solution, but an integral part of a complete research strategy that relies on qualitative foundations and quantitative confirmation.

Fourth, a problem with the set-based techniques presented here is that they are temporally static in nature. Let us not forget our discussion in Chapter Three; explicit attention to the role that time and sequence play in causal analysis is an essential step forward in understanding the causes of civil war. With this we can transition into a discussion of the prospects for incorporating the facets of context, mechanisms, and time from Chapter Three into set-theoretic analyses.

⁵² Again, while it is important to mention here, a lengthily discussion of all the points of the problem of limited diversity is outside the scope of this piece. For a full discussion see Ragin (2008) chapters 8 and 9.

Incorporating Context, Mechanisms, and Time

We must be attentive to the role of context, mechanisms, and time. What opportunities exist within set-theoretic analysis for explicit attention to these facets of causation? The outlook is promising. Recall in Chapter Three our discussion of Falleti and Lynch's conceptualization of context as constituted of multiple layers that interact to produce an outcome.⁵³ The idea of context as the collective interaction of layers is directly congruent to that of configurations as the intersection of sets. Configurations are the contexts in which we see an outcome occur. In this way set-analysis is directly in tune with a focus on the different contextual factors that cause and shape civil war. It is set-theoretic analysis's conception of causation as configurational and conjunctural rather than linear and additive that allows for this incorporation of context into cross-case analysis.

As reviewed, Falleti and Lynch also stress that if we wish to gain insight into the interaction of context, mechanisms, and time we must be attentive to the development of individual contextual layers across time. How can we expand set-theoretic approaches to include explicit attention to time? There have been two basic approaches in recent scholarly work to do this. There are firstly those efforts that attempt to focus on the order and sequence of events essentially by treating different temporal orders of conditions as additional set configurations.⁵⁴ While understanding the role of sequence is important, efforts thus far compound further the problem of limited diversity. The number of possible set combinations if we include all possible temporal orders as additional set configurations is expressed as $k! \cdot 2^k$ (where "!" refers to the factorial function). This means that with the feasibility thesis's 14 variables, for example, we would be looking at almost 1.5 quadrillion combinations. Clearly this approach further expands the already inherent limitations of set-theoretic analysis.

⁵³ Falleti and Lynch (2009)

⁵⁴ See Caren and Panofsky (2005) paper on the TQCA method and the response in Ragin and Strand (2008). Also, Mahoney *et al* (2008) makes a good discussion of many of the principles behind temporal analysis in set-theory in their elaboration of the parallel method of sequence elaboration.

A second and more promising strategy for including a temporal dimension in set-analysis is to look at cross-temporal variation in data rather than order and sequence. With this strategy we merely code cases at multiple temporal points for comparison and analysis. Not only does the number of possible configurations not expand in this strategy, but the number of observations we have to draw from increase. If we analyze 150 cases at two time points, we effectively double our n , perhaps eliminating some logical remainders. In the resulting analysis we would perhaps be able to argue that certain causal configurations were “more” or “less” necessary or sufficient at different points in time. Including a theoretically informed range of time points in a set analysis may make the effects of specific historic events evident in cross-case data. This would be a dramatic expansion of one of the key strengths of set-analysis; a direct correspondence with empirical cases.

This strategy is on the cutting edge of methodological development in set-analysis. As far as we are aware Airo Hino’s 2009 paper on time-series set-analysis is the only published effort of this strategy to date.⁵⁵ Thus, there are still many points to resolve. For example, is using findings from multiple temporal points an artificial inflation of the n in a study; similar to the way it can sometimes be in regression analysis? Further empirical application of time-series set-analyses and its continued combination with fuzzy-set techniques will prove an exiting endeavor that will expand our understanding of the many facets of this new group of methods and prospects for further inclusion of specific attention to temporal issues in set-analysis.

Lastly, the opportunities for explicit attention to context and time in set-analysis are the door to considering how this method can also incorporate attention to causal mechanisms. The development of context across time is the essential backdrop against which we must hypothesize about the causal mechanisms that drive change. There is much to learn here, will the data we gather in time-series set analysis shed light on hypothesized mechanisms like feasibility? Will we see support for analyses that propose path-dependent processes are at work? This is again an exiting area of methodological and empirical development.

⁵⁵ Hino (2009)

Conclusion: An Ideal Research Strategy in the Study of the Causes of Civil War

In light of this discussion of set-theoretic methods as an invaluable middle ground between traditional within-case qualitative research and cross-case quantitative research in the study of the causes of civil war, what is the most useful path forward? If we limit our focus to the feasibility thesis, a sensible path seems to be to use fuzzy-set analysis as a means to test its findings with much the same structure as the hypothetical example in this chapter. Because fuzzy-set analysis is attentive to the diversity of cases we may be able to add depth to the feasibility thesis. Perhaps we would find that there are several distinct configurations (contexts) in which the causal pathway to rebellion is activated.

Furthermore, expanding the dataset to analyze distinct time periods prior to the outbreak of civil war gives us much to work with in our attention to the role of context, mechanisms, and time. Results such as these would constitute a significant advance in the study of the causes of civil war. However, even if we were successful in reconstituting a more appropriate sample and recalibrating the variables into sets, a true analysis of the feasibility thesis through set-theoretic approaches will be troubled by the problem of limited diversity. Not to mention ignoring the feasibility thesis's foundations in greed-based explanations of civil war.

Through its attention to diversity, set-theoretic analyses are but reflections of the findings from qualitative within-case studies. Without specific attention to what we see in individual cases, and the theory that evolves from them, we cannot hope to build a meaningful cross-case analysis of the causes of civil-war. As outlined in Chapter Two, the feasibility thesis is built on a foundation of regression analyses whose specifications are in the best cases poorly informed by theory, and in the worst cases completely arbitrary. In this regard the feasibility thesis has a distinct disconnection from within-case observations and theory. Any set-theoretic analysis with the feasibility thesis as a starting point shares its pitfalls. A comprehensive study of the causes of civil war with a commitment to approaching scientific inquiry through a logically consistent methodological pluralism must be built from the ground up.

A comprehensive three-stage strategy for studying the causes of civil war logically begins with a series of qualitative case studies. With specific attention to the

role of context, mechanisms, and time qualitative case studies, and qualitative comparative analysis, can engage in a strategic discourse on the causes of civil war. Individually these case studies serve as explanations of specific cases. However, with coordination, case studies can serve as the foundations for our typological and theoretical understanding of the causes of civil war.

The second stage of a focused research strategy is to use the collective findings from qualitative work to inform what cases we are to examine, and what to examine within those cases. If in our qualitative work we find several typological varieties of civil war with distinct causal logics, then we should study these as separate kinds of cases. If we want to draw cross-case findings that reflect within-case logic then we must only compare analytically equivalent cases. Within each typological variety our qualitative foundation will point us to what combination of conditions (sets) create the context (configurations) for civil war.

Fuzzy-set analysis can play a vital role at this stage in drawing together the findings of individual cases to form the bigger cross-case picture. Also, temporally expanding our dataset to include multiple time-series can give us the pieces of the puzzle that allow us to continue to be attentive to the role of context, mechanisms, and time in the causes of civil war. The findings from fuzzy-set analysis at this stage are invaluable in that they are reflective of the within-case explanations and at the same time can serve as the information needed to make informed model specifications in statistically based quantitative cross-case analyses. Set-theoretic analysis is truly a bridging method between two fundamentally disconnected, but equally valid, forms of scientific inquiry.

Accordingly, the third stage of a focused research strategy on the causes of civil war is to extrapolate and test the findings of set-theoretic cross-case analysis with the tools of statistically based cross-case analysis. Set-configurations that account for the causal structure of the complete range of cases of civil war are an indispensable guide to how to further specify regression models. We have a much better picture of what we are looking for and how much of it. Now we are armed with statistical models that have specifications that are connected to individual cases and theory. By including variation in our sample at this stage we can mitigate between causes that are redundant, decisive, or

contingent to the outcome of civil war. This can in turn suggest revisions to the previous stages of inquiry.

While, for simplicity's sake, we have characterized this research strategy as a fairly linear process it is important to understand that at every stage our findings exist in a constant dialogue between ideas and evidence. At every stage our study can produce new typological distinctions, new theoretical nuances, new concepts and calibrations, new sets and configurations, and new statistical relationships to consider. Hence, a strategic research strategy is not linear, but a dynamic and fluid process. Our cumulative knowledge is an interlinked chain.

The typical shape of academia is often of the merging of the meandering paths of many researchers with their own interests and agendas. There is often a desire for researchers to over-extend their conclusions rather than to triangulate findings across methodological divides. Freedman's words are ever-present: "Naturally, there is a desire to substitute intellectual capital for labor."⁵⁶ It is rare that any subject can find the focused structure needed to coordinate the labor of many individual scholars. In the study of the causes of civil war we are adamant that a holistic research strategy requires the focused coordination of a specialized research group. Given the highly destructive nature of civil war, we would consider this endeavor of the utmost importance.

The task at hand is enormous, but equally so is its importance. With the coordinated efforts of many scholars and an enabling research environment, a pluralist research strategy can add great depth to our understanding of the causes of civil war. This holistic picture of the causes of civil war is profoundly important in informing policy and political decisions in the future.

⁵⁶ Freedman (2010) p. xiv

Conclusion

Closing the Gap

There is no royal road to science, only those who do not dread the fatiguing climb of its steep paths have a chance at gaining its luminous summits.

–Karl Marx¹

Understanding the causes of civil war is an enormously important undertaking. The scholarly thought that academia produces directly and indirectly informs policy and decision makers. Providing a picture of our knowledge that is as transparent and complete as possible is a point of great concern.

We have contended that indeed the causes of civil war are enormously complex and that providing a complete picture is difficult. Though econometric explanations have gained considerable favor in recent years, they deserve serious scrutiny. Beyond the surface discourse, without specific attention to the ontological, epistemological, and methodological foundations of econometric explanations, like the feasibility thesis, policy and decision makers can easily misinterpret the findings of such studies. In this regard we have argued that “large-n studies of conflict have produced a large number of statistically significant results but little accurate guidance in terms of anticipating the onset of conflict.”² With the feasibility thesis in particular there is a clear gap between scholars and practitioners as the term ‘feasibility’ is clearly divorced from its verbal linguistic meaning here.

In seeking to close this gap between the academic and political worlds we have argued that a pluralist research strategy that incorporates set-theoretic approaches as a bridging tool between traditional qualitative and quantitative approaches can serve as a key path to providing the most complete and coherent picture of the causes of civil war. “Configurational assessments are directly relevant to policy debates in the larger society. Policy discourse often focuses on categories and kinds of people (or cases), not on

¹Marx, “Preface to the French Edition,” *Capital* (299), quoted in Gerring (2011).

²Ward *et al* (2010) p. 363

variables and their net effects across heterogeneous populations.”³ We need academic work that translates across this divide to good policy decisions.

Outside of closing the gap between scholars and practitioners, the configurational mode thinking inherent in set-theoretic approaches is also especially useful in expanding our academic thought. Configurational thinking provides unique opportunities to expand our methodological, conceptual, and theoretical understandings in regard to issues of context, mechanisms, and time. This is an area lacking in much of the social sciences, but especially absent in the analysis of the causes of civil war.

Attempting to understand how to best study the causes civil war is at times an overwhelming endeavor. As we have seen, the question of what forces drive civil war, and the embedded discourse on how to best reveal these forces, is fundamentally complex. Holding strong to one interpretation, and likewise one methodological approach, is unlikely to provide us with helpful insight in understanding, and in turn preventing, the causes of civil war. A coordinated and focused pluralism is the most promising path forward. We must continue to push along the steep roads of academic pursuit. With the shared goal of understanding the causes of civil war, we should push together.

³ Ragin (2008) p. 181

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