TOPHER L. McDOUGAL

THE POLITICAL ECONOMY OF RURAL-URBAN CONFLICT

Predation, Production, and Peripheries

OXFORD

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Dedicated to L, K, and A.

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Part I

The Political Economy of the Rural–Urban Interface

1

Introduction

1.1 The Battle Lines Are Drawn

In the summer of 2003, the rural, ragtag rebel armies of the unironically named Liberians United for Reconciliation and Democracy (LURD) and the Movement for Democracy in Liberia (MODEL) converged on the capital city, Monrovia—then controlled by Charles Taylor's government—and began shelling it. Robert (not his real name), whose family had moved from the countryside to the capital during a previous episode of internal conflict, was caught out across the river from peninsular downtown Monrovia when the rebels attacked. There was no way to cross back over the bridge to the relative protection afforded by the Armed Forces of Liberia. Moreover, Robert's last name gave him away as a Gola—a small ethnic minority to which Charles Taylor belonged, and for which LURD, a majority ethnic Krahn organization, had little fondness. The combat frontier—that shifting, invisible boundary separating rebel-held territories from government-held ones—had been amorphous in the countryside, often with disastrous humanitarian effects on the civilian population. Only here around the besieged city did it fully coalesce.

Robert changed his name on the spot, living for two months as a homeless, tribeless, urban refugee, scrounging daily for food and water. But he was one of the lucky ones to survive the Liberian Civil War—a neat moniker for a shambolic, sprawling set of interrelated conflicts that reached far into neighboring countries, but which are broadly lumped into two sequential conflicts spanning 14 years. Members of Robert's family died when their urban apartment was hit by a mortar.

The wave of violence that washed over the city was overwhelming. Every Liberian who lived through the war knows someone who was killed in it—most likely many. Businesses were targeted relentlessly for their economic value, and many were outright destroyed by rampant looting. In fact, 2003 was the third time that Monrovia—the political and economic hub of Liberia,

housing roughly one-third of the country's total population—had come under siege by a rebel force in the preceding decade and a half.

Six years later and half a world away, I chatted with a human rights lawyer at his office in the seaside city of Visakhapatnam on India's east coast. He worked to promote the legal standing of tribal Indians known as *adivasis*. I had come to investigate the Maoist rebels known as Naxals, named after the town of Naxalbari in West Bengal where a peasant uprising was violently put down in 1967. The response triggered the formation of an armed resistance that appealed especially to *adivasis*, who struggled to assert their claims to rural land.

Though the Indian government largely stamped out the Naxal movement in the 1980s, the effects of economic liberalization on marginalized Indians like the *adivasis* reanimated it over the 1990s and 2000s. By 2006, Naxals had gained footholds in between one-fourth and one-third of the country's 602 administrative districts. Many of those were under the direct administrative control of the Communist Party of India (Maoist), the banned political party formed by the 2004 merger of India's largest armed left-wing factions, the People's War Group and the Maoist Communist Centre (The Economist, 2006). Moreover, these districts were not, for the most part, found near remote, disputed borders with neighboring countries, as in the cases of Jammu and Kashmir (contested with Pakistan) or Arunachal Pradesh (contested with China). Rather, the immense forested swathe of that country dubbed the "Red Corridor" stretched through India's heartland, from the Western Ghats of Karnataka, Tamil Nadu, and Kerala near the southwest coast; through Andhra Pradesh, Orissa, Chhattisgarh, Jharkhand, West Bengal, Bihar, and up to Sikkim in the Himalayan foothills. Visakhapatnam itself was considered a Naxal-affected district, and lay just an hour or two's drive from areas alternately described as "infested" or "liberated," depending on the source. The group's aim—like that of their ideological cousins across the border in Nepal—was to capture progressively larger towns and cities and, eventually, to overthrow the state itself.

Naxals could be brutal toward that end. They showed no mercy to civilians they considered a threat to their movement, killing by bomb, gun, or machete. In 2010, the conflict claimed nearly 1,200 lives, over half of which were civilian, whilst fewer than 300 were from the ranks of the security forces. These figures meet the definitional threshold for a war amongst scholars.

I asked the lawyer to what extent his urban life was disrupted or threatened by the Naxal movement. The idea seemed to amuse him: despite the Maoist hold on so staggering a proportion of a politically important and economically dynamic country, most urban Indians are themselves shielded from, or even largely unaware of, the conflict. He explained again what I had heard often before: it was easy to avoid Naxal violence by staying away from the

combat frontier—which had in effect crystalized into a tacit but firm border between two antithetical governments in rural and mountainous areas. He had more to fear from a jumpy, insecure government that tended to react in heavy-handed ways—not only to Naxal guerillas and their supporters, but even to those, like the lawyer himself, who sympathized with the general plight of *adivasis*.

How can we explain why rebels targeted cities in Liberia, but not in India? Liberia is certainly not alone in hosting rural insurgencies that attack cities as economic prey. Freetown in Sierra Leone, N'djamena in Chad, Maputo in Mozambique, Luanda in Angola, and even Sudan's Khartoum, are but a few of the cities in sub-Saharan Africa alone that have been targeted by rural-based challengers to state authority in recent decades. In other cases, insurgents may not seek to capture cities at all, and the combat frontier seemingly represents an equilibrium that, with the exception of possible terrorist attacks, effectively firewalls urban citizens from violent non-state actors in rural areas.

And why was the combat frontier in Liberia so amorphous, but so neat in India? In Liberia, the boundary between state and insurgents was messy, leaving large swathes of space in disputed no-man's-lands characterized by sporadic and unpredictable outbreaks of violence. Such messy combat frontiers can have disastrous consequences for people and businesses living and operating in their penumbra. Other examples of messy combat frontiers are found in Afghanistan, northern Nigeria, and eastern Democratic Republic of Congo. In India, by contrast, the border between state and insurgents is neatly delineated. Other examples of neat combat frontiers might include recent conflicts in Nepal, Sri Lanka, Côte d'Ivoire, and even Syria and Iraq.

Relative stability of a combat frontier might naturally over time lead to increasing tidiness, of course. As skirmishes over disputed territories grow smaller and less frequent, the combat frontier may slowly become a nascent "border" in many respects. However, there are also cases in which these two characteristics do not coexist. For example, the territory held by the Islamic State (IS) in northern Syria and Iraq is intensely fought over by a bewildering host of local and transnational actors, and territorial boundaries are constantly shifting. In the wake of the 2011 uprising, allied rebels with rural support along the Euphrates Valley were drawn toward large towns and cities like Aleppo, expanding along large trunk roads facilitating the transfer of goods, including oil. Rapidly taking over large territorial expanses initially won by Syrian rebel forces in early 2014, IS expanded its control over secondary cities like Fallujah, while edging toward the primate cities of Baghdad and Aleppo. But between June 2014, when IS fighters overran the northern Iraqi city of Mosul, and April 2016, IS lost approximately 40 percent of its Iraqi territory and 10–20 percent of its Syrian territory due to a combination of factors ranging from coalition airstrikes to Kurdish resistance to the operations

of various Sunni militias (BBC News, 2016)[1] and renewed assaults by the Iraqi army (Hecimovic, 2016). Nevertheless, the boundary between IS and "other" is usually well-defined between skirmishes, advances, and retreats, and the organization operates checkpoints in and around captured cities and towns.

The central question of this book is then: What factors account for these differences in the interface between urban-based states and rural-based insurgents? Radical development disparities exist in many countries between urban and rural areas—a fact that is often seen as fueling rural–urban conflict. But these disparities often cannot explain the differences in the movement and the character of the combat frontier. Instead, the trade networks[2] that link rural and urban areas dramatically affect (and are affected by) both the direction and the cohesion of the combat frontier.

To explore this question, I did fieldwork in two regions representing two dramatically different outcomes. In West Africa (Liberia and Sierra Leone), capital cities became economic targets for rebels, who posed dire threats to the survival of the state. In Maoist India, despite an insurgent ideology aiming to overthrow the state via a strategy of progressive city capture, the combat frontier effectively firewalls cities from Maoist violence. I interviewed firm managers, traders, and, where possible, locals at risk for rebel recruitment. I employed a diverse suite of research methods, from formal modeling to qualitative fieldwork (semi-structured interviews) to econometric analyses based on survey data and geographic information systems. I wanted to analyze, first, the effects of violence on the structure of rural–urban trade networks, and second, the reciprocal effects of trade network structure on the combat frontier itself.

1.2 Traders and Raiders

Two characteristics of trade networks stand out as explanatory factors of rural–urban conflict dynamics. The first characteristic is the structure of the road networks that link rural and urban areas—what we might call the "hardware" of the economic relationship. I make a distinction between radial and

[1] Still in 2016, though, the map of IS territory largely corresponded to those areas surrounding major radial road axes running southwest–northeast from Damascus to Mosul, and northwest–southeast from Aleppo to Baghdad, with the intersection resting in an agricultural rural "heartland" on the banks of the Euphrates River and straddling the border originally delineated by the centenarian Sykes-Picot agreement.

[2] Throughout this book, I will use the terms "production networks" and "trade networks." The two are related but not identical. "Production networks" will be defined to include the hubs of value-added in an economy, such as farms, mills, factories, etc., in addition to the trade linkages between them. "Trade networks" refers only to the linkages between them, be they involved in supplying hubs or distributing products.

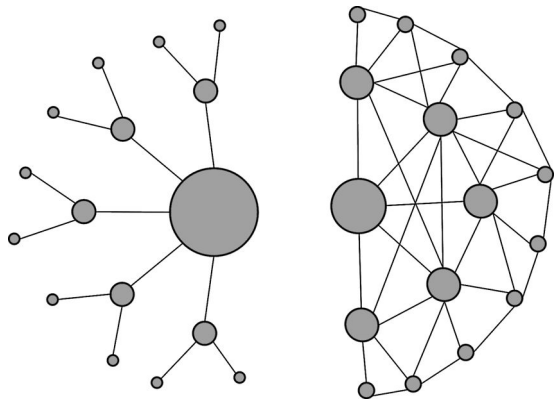

Figure 1.1 Radial (left) and reticulated (right) trade patterns, and their potential effects on relative city size.

reticulated road networks (see Figure 1.1). Radial (or "mono-polar") road networks tend to concentrate profits from rural-urban trade in towns and cities more closely linked to the hub, or central city. Reticulated (or "multipolar") road networks, by contrast, tend to weaken the monopoly and monopsony power of traders, allowing for a less asymmetric economic relationship. My contention is that radial networks incentivize predation by armed groups due to the high profitability and low patrol costs associated with the capture of towns and cities to tax trade routes.[3] In the typology of Daniel Esser (2004), cities themselves may become "prey."[4] By contrast, reticulated networks favor trading with towns and cities, whose capture now promises lower profits and higher patrol costs. In such scenarios, cities play the role of conflict "hubs," in Esser's terminology—central nodes in the exchange of goods and information in the conflict, but not fought over.

Perhaps one of the most evocative examples of armed groups attracted to the monopole of a radial network comes from fourteenth-century France. In 1356, the English under the Black Prince dealt a crushing and humiliating defeat to French forces at the Battle of Poitiers, even capturing King Jean II himself to hold him, literally, for a king's ransom. One of the upshots of this battle was the formation of so-called "free companies" of foreign soldiers—English, Welsh, Gascons, mercenary Germans, and Hainault freebooters—in the heart of France. The Black Prince had released them from service so as to

[3] The present focus on the structure of the trade networks in no way negates the importance of the characteristics of traded goods, which may influence the onset, duration, and intensity of conflict. See Chapter 2, Section 2.3: "The extensification-intensification dialectic."

[4] Note that robust government military intervention may prevent this from actually occurring, even if the underlying structural incentive remains.

discontinue their pay. Without any central coordinating structure, the soldiers coalesced into bands of usually 20–50 soldiers, though some grew into small armies of 2,000 or more. They attracted to their ranks Navarese and Breton soldiers from French vassal holdings, and even French knights who had been financially ruined by Poitiers[5] (Tuchman, 1978).

In the chaos of a kingdom without a king, the free companies knew great success. Most were militarily incapable of (and uninterested in) conquering cities or holding territory. Instead, they made their living through plunder and ransoming wealthy towns, villages, churches, and even castles, in the classic manner of "roving bandits" who never must learn to govern (Olson, 1993). Almost inexorably, the companies were drawn toward wealth—and in fourteenth-century France, that meant northward toward Paris.[6] Unable to pose a significant threat to the great walled city itself, many companies installed themselves at its doorstep, between the Seine and the Loire, where they seized valuable property from peasants, nobles, and Church alike. In poor farms and villages, they wreaked havoc and caused wanton destruction. They killed and tortured, raped and razed. These acts of destruction "seem inexplicable except as a fever of the time or an exaggeration of the chroniclers" (Tuchman, 1978, 164), and yet they served a specific economic purpose in proving to the wealthy that they posed a credible threat. And like some modern warlords in countries profiled later, the most successful brigand commanders were even admitted, sometimes repeatedly, into high government positions in bids to purchase security (Tuchman, 1978).

The second explanatory characteristic I highlight is the type of underlying social system upon which trade networks are based—what might be termed the "software" of the economic relationship. Specifically, I focus on whether those social systems are ranked or unranked (see Figure 1.2). In a ranked social system, ascriptive identity groups are arranged in hierarchical fashion. The Indian caste system is a prototypical example, but feudal Europe provides numerous examples, as well. In an unranked system, ethnicities are arranged in separate, nonhierarchical fashion—for instance, tribes living side by side without clear and persistent socio-economic hierarchy, as in West Africa (Horowitz, 2000).[7] Those trade networks based upon ranked social structures

[5] Many French knights captured at Poitiers were ransomed by their families at terrible cost.

[6] A few bands were drawn south to the papal court at Avignon. One of these, led by a warlord known popularly as "the Archpriest," so ravaged the outskirts of Avignon that Pope Innocent VI paid him a handsome sum for the city's immunity, and granted him pardon for his parade of past sins to boot.

[7] This stylized generalization should be nuanced: intricate social hierarchies evolved historically within various kingdoms and empires of pre-colonial West Africa: Mali, Songhai, Dendi, Bornu, Ashanti, the Fulani Jihad States of Futa Toro, Futa Jallon, Masina, and Sokoto, etc. But as a rule, these were federalist organizations that harnessed, rather than challenged, local ethnic power structures in their territories (Roland Oliver and Anthony Atmore, 1994 [1967]). Colonial rule often built on this tradition, sometimes viewed as part of the "divide and conquer" strategy (James

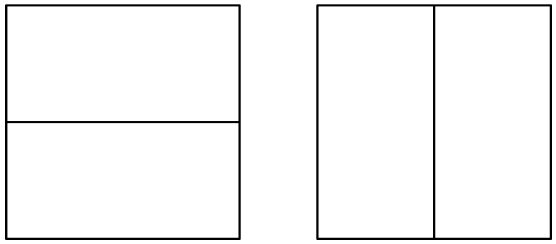

Figure 1.2 Ranked (left) and unranked (right) societies. Adapted from Horowitz (2000). Used with permission from University of California Press © 2000.

facilitate elite-elite trade deals between urban-based traders and rebel commanders that benefit the rural insurgents and make for clear territorial borders. By contrast, those based upon unranked social structures tended to disallow this sort of deal structure, rendering the border fuzzy, and further concentrating profits in urban areas, thereby destabilizing the combat frontier.

These "interstitial economies" linking cities and rural areas affect not necessarily the onset or intensity of the conflict, per se, but its directionality between rural and urban areas, and the clarity or fuzziness of the combat frontier. Using the two distinctions introduced on pp. 6 and 8, we can describe a typology of rural–urban conflicts.[8] These typologies might also be associated with probable civilian tolls: conflicts with messy combat frontiers that have the potential move quickly toward urban areas (or away from them, in the case of a government military counteroffensive) are likely to be the most deadly.

Table 1.1 gives examples of each permutation. Liberia and Sierra Leone (quadrant I) exhibited messy combat frontiers, and their respective capital cities became the targets of various rural-based rebel movements.[9] Maoist India (quadrant IV), by contrast, exhibits a neat combat frontier, and large

Ferguson, 1994 [1990], Jeffrey Herbst, 2000). And whilst Liberia and Sierra Leone are described here as "unranked societies," both countries do have ethnic and economic elites who trace their ancestry from repatriated New World slaves and, in the case of Sierra Leone, would-be slaves intercepted by British patrols and deposited for convenience in that country after the passage of the Slave Trade Act 1807. Indeed, I intend the ranked/unranked distinction to be seen less as a true dichotomy, and more as a gradient polarized intentionally for analytic purposes.

[8] I intend to explain the formation of neither infrastructure networks nor the social systems that populate them with traders. There is a large literature (discussed briefly and selectively in Chapter 2, Section 2.1: "Town and country") on regional economic development and the evolution of city systems and the road networks connecting them. There is also, of course, a huge literature—actually the entire field of Sociology—dedicated to understanding the evolution and dynamics of social systems, including the historical origins of hierarchies such as the caste system in South Asia (Gail Omvedt, 1994) and modern social movements seeking to change them (Mary Katzenstein et al., 2001, Topher L. McDougal, 2011b, Myron Weiner, 2001). For the most part, I will take these phenomena as fixed, while acknowledging—indeed, welcoming—the possibility that public policy may affect both.

[9] It is interesting to note that, by and large, the Sierra Leone Civil War is not viewed as having taken on overt ethnic dimensions, whilst the Liberian civil wars most definitely is (generally: Gio and Mano versus Krahn and Mandingo).

Table 1.1 Conflict typologies by cleavage orientation and rural–urban dynamic

	Radial economy Urban profits	**Reticulated economy** (Potential for) rural profits
Unranked social structure	I. Messy combat frontier; cities are prey	II. Messy combat frontier; cities are hubs
Homo-ethnic trade networks	*Ex. Liberia, Sierra Leone, southern Somalia, Afghanistan*	*Ex. Eastern DR Congo; Northern Nigeria*
Ranked social structure	III. Neat combat frontier; cities are prey	IV. Neat combat frontier; cities are hubs
Hetero-ethnic trade networks	*Ex. Nepal; Syria/Iraq (IS)*	*Ex. Chhattisgarh, India; Côte d'Ivoire*

towns and cities play the part of conflict hubs—essential to have access to, but not necessarily where the greatest profit margins are. The other two quadrants have not yet been mentioned: an example of type II might be the various conflicts in the Eastern Democratic Republic of Congo, in which homo-ethnic trade networks (composed of the Nande and the competing Gegere) (Kabamba, 2008) were allied with military groups (the RCD-ML, and the Ugandan-supported UPDF of General James Kazini and the UPC of Thomas Lubanga, respectively). Such military-commercial alliances have accompanied years of messy warfare. Commercial access to major urban markets was crucial for traders, such as when the Nande seized a political opportunity in 2002 to reestablish ties with Kinshasa (Raeymaekers, 2004). But cities were the hubs and not primarily the targets of violence in the East. Quadrant III is occupied by Nepal, as well as the Islamic State in Syria.[10] The former country is economically dominated by Kathmandu, and in which a hierarchical society produced ethnically segmented trade networks producing a neat delineation between government and rebel-held territories. Maoist rebels held sway in rural areas and, in 2004, attempted a blockade of the capital.[11]

[10] The classification of this conflict as one occurring within a ranked social structure is fraught. On the one hand, Islamic teaching emphasizes a tripartite hierarchy comprising Muslims, "People of the Book" (Christians, Jews and others of Abrahamic, monotheistic traditions), and then all others coming from non-Abrahamic faith traditions (Annemarie Schimmel, 1992). And certainly reports coming out of the Islamic State territories corroborate this hierarchy, but also generally paint a grim picture of life for all non-Sunnis. On the other hand, whilst the Sunni-Shia divide was a central factor motivating political favor and the awarding of government jobs in both Saddam Hussein's Iraq and the al-Assad dynasty's Syria, social recognition of this sectarian distinction was usually eschewed. Prior to the eruption of widespread sectarian strife in 2006, or instance, neighborhoods of Baghdad and many other Iraqi cities were characterized by heterogeneous ethnic composition (BBC News Online, 2010).

[11] I considered, but ultimately decided against, placing Rwanda in this category. It, too, exhibited a clearly monopolar economy based around a political and economic capital, Kigali, that predictably became the target of the Tutsi rebel advance (Marijke Verpoorten and Pieter Serneels, 2010), a ranked social system, and an often neatly defined combat frontier. However,

More broadly, though, this book seeks to recast the dynamics of violent internal conflict as a dialectic relationship between intensification (production) and extensification (predation). Productive activities occur in both urban and rural settings, of course—as do predatory activities. To the extent that urban producers are able to employ "economic violence"—economically exploitative market structures—against rural producers, reciprocal predatory violence may be a predictable response.[12]

Conflict dynamics and development processes have a notoriously circular relationship: they are replete with positive feedback loops, collectively termed the "Conflict Trap" (Collier et al., 2003). The structure of the economy may provide incentives for engaging in production or predatory violence, and violence informs the decision calculus of economically productive actors. This type of causal circularity is often termed "endogeneity" by economists.[13] I want to view this process through the lens of production networks that link specific centers of supply and demand. Production networks are important for study because they represent the hubs and linkages that collectively make up the sources of value-added to be captured, violently or otherwise, by state or non-state actors. Moreover, production networks are not just inorganic infrastructural systems like roads and railway lines. Rather, they are animated by real people coming into real, multifaceted relationships with one another, acting according to self-interest, social norms, and personal values. These networks are, to borrow a phrase from Balakrishnan Rajagopal, a "terrain of contestation" (Rajagopal, 2005, 183) that structures rural–urban conflict.

the complexities associated with the artificial creation of rigid ethnic identities during the colonial period, the preceding genocide and continuing conflicts over access to cultivable land (Catherine André and Jean-Philippe Plateau, 1998), the international intervention, and the shockingly compressed timeline all militate against an easy categorization. Nor is this the only example that resists pigeonholing; all of the conflicts included here are much more nuanced than this prêt-a-porter framework acknowledges. But an admission of simplification (or, more generously, parsimony) does not nullify the analytical value of the framework itself.

[12] The distinction between "direct" and "structural" violence was originally formulated by Johan Galtung (1969), and of course the idea that markets can be structured more or less exploitatively was formulated comprehensively by Marx and Engels. Marx's seminal idea of exploitation as "surplus value" continues to be employed by left-leaning economists in the peace and security realm, particularly in the field of military spending (J. Paul Dunne et al., 2013, Tom Riddell, 1986). However, the idea that such exploitation might erode "positive peace"—another of Galtung's concepts that seeks to reify peace as something more substantial than merely the absence of violence—and thus classify in some respect as a form of structural violence itself has only begun to be explored, notably by those in the human rights community (Dustin Sharp, 2013).

[13] Originally, economists were most greatly concerned with describing the endogenous dynamics of economic growth (see, e.g., the explanation in Angus Deaton, 2010). A growing population implies greater consumer demand, which in turn spurs greater supply by firms that must hire more people—and so on (Paul M. Romer, 1994). The Conflict Trap, by contrast, describes a vicious circle: conflict destroys human and physical capital, which reduces the demand for, and supply of, economic goods. This means jobs are shed, which reduces the opportunity costs of engaging in violent predation (Paul Collier, 1999, Paul Collier, V.L. Elliott, Havard Hegre, Anke Hoeffler, Marta Reynal-Querol and Nicholas Sambanis, 2003, Paul Collier and Anke Hoeffler, 2000).

This is partly, then, a story of norm-based resilience in the face of overwhelming odds: even as production (and particularly trade) networks splinter and fragment due to violence, they grow in membership and expand the universe of economically viable alternatives available to the productive economy. Even as the rule of law erodes, trade networks succeed in promoting compliance with a set of standards for a new brand of localized economic activity through social channels. In the absence of vertical enforcement mechanisms coordinating the interface between urban and rural, industrial and agricultural, government and rebel, these horizontal production networks are able to cultivate a degree of interstitial economic order. But just how they do it, and what the effect is on the conflict dynamic, will depend greatly on the social norms that underpin those trade networks.

Given weak or absent state institutions capable of guaranteeing property and contract security through a credible threat of retributive justice, trade and production networks may rely on social norms to maintain their integrity. Stated as a question, when few "vertical" enforcement mechanisms exist to ensure good behavior, must "horizontal" relationships between actors be characterized, in the words of one economist, as occurring "only in the shadow of conflict" (Hirshleifer, 1994, 3), or do social norms play a role in structuring relations? Here, I am asking a version of Harold Koh's (2004) question ("Why do nations obey international law?") but reframed for traders: "Why do traders trade in environments conducive to stealing?" Koh sets out five possible reasons for the kinds of rule compliance that is necessary for productive interaction: (1) threat by a coercive power, (2) self-interest, (3) reasons of liberal theory associated with Kantian rule legitimacy and political identity, (4) communitarian solidarity, and (5) legal process (Koh, 2004).

The first two reasons might be rephrased as "sticks and carrots," and easily plugged into a cost-benefit analysis. The last three have more to do with the establishment of social norms that may retain a hold on actors whether or not utility payoffs are maximized. And I will add a sixth to that list: teaching and knowledge-sharing can support new forms of productive activity that otherwise would not have occurred. These factors all have their place in this story; indeed to dismiss the rational economic reasons would be to miss quite a large chunk of the story I mean to tell. But I will also argue that trade networks serve as midwives to *emergent* economic governance processes which piggyback on social relations. In doing so, they actually succeed in changing the calculus of rational actors. And because the trade networks themselves are largely held together through a sense of communitarian solidarity, the way the communities are arranged in society—again, ranked versus unranked—will matter a great deal in determining how they function.

Under certain conditions, the traders and businesspeople who populate these production networks even succeed in instilling the norms required for

a productive economy—limitations on the unbridled use of force, expectations of cooperation, a measure of good governance—in the violent actors who would overthrow it. In other words, the trade networks I describe act in some measure as facilitators, effecting a kind of Coasian bargain (Coase, 1960) between urban industry and rural-based insurgents. In this regard, my thesis may serve as a counterpoint—not a rebuttal—to the many fine existing studies that describe war economies as overwhelmingly pathological, geared to the production of more violence, and tied inextricably to the interests and military forces of despotic warlords.[14]

Lest one get the idea that this is all a good news narrative, I should also mention at the outset that this coin has a darker side—for if traders in rural–urban networks allow the productive economy to survive in spite of or even thanks to violent actors, they facilitate the exploitation of the rural areas they serve. In doing so, they may enable the further growth of non-state armed groups. In other words, these trade networks serve as the interface between the two faces of what I will describe later as the intensification-extensification dialectic—giving rise eventually to new knowledge and forms of production.

1.3 The Stakes

This book examines the economic relationships between rural and urban areas in countries in which violent conflict has threatened to fracture the state. A focus on the connections and cleavages that characterize the rural-urban relationship in such countries is instructive in at least three ways. First, as suggested on p. 5, it may improve our current understanding of the many ongoing conflicts characterized by rural-based insurgent movements mobilizing against urban-based states. The world crossed a threshold in 2008: for the first time in history, the majority of its residents lived in urban areas (cf. United Nations Population Division, 2007). Perhaps not coincidentally, in the half century leading up to that benchmark, characterized by unprecedented rapid rates of urbanization, wars had devolved from discrete, interstate military contests into messy, internecine conflicts (Muggah, 2012b). Of the 110 major conflicts between 1989 and 2000, 103 were considered civil wars (Weinstein, 2002). Indeed, a large number of civil wars in the recent era have

[14] Seminal examples include Reno (1997) and Pugh and Cooper (2004). A more recent and very compelling case for the existence of a war economy in Somalia is made by Anja Shortland et al. (2013). It has become almost second nature for policymakers to strategize ways of "transforming" war economies in the post-conflict period (see, e.g., Heiko Nietschke, 2003, and Christiana Solomon, 2006), rather than building on possible positive developments that may have occurred in war. This is often due to an exclusive focus on commodity exports and illicit trades (e.g., Philippe Le Billon, 2001, Michael Ross, 2004a).

come to be characterized by a military contest between actors based in urban areas on the one hand, and actors based in rural areas on the other (Esser, 2004, Grünewald and Levron, 2004)—that is, they are wars of country versus city, periphery versus core.

The directional movement and coherence of the combat frontier have large potential humanitarian consequences for civilian populations. The answer to this book's research question may have implications for humanitarian and conflict-sensitive development policy. Applicable cases might include situations as divergent as Boko Haram in northern Nigeria and adjacent countries; the Islamic State in Syria and Iraq; the FARC and paramilitary groups in Colombia; and the various insurgencies in Myanmar that, amazingly, have continued to simmer since Britain withdrew in 1948 (Thornton, 2006). This approach may also help to illuminate the relationship between national capitals and certain oppositional "city-state militias," such as those found in Libya and Ukraine.

Second, this book will bolster our understanding of economic governance more generally—and the nature of disruptions currently upsetting the scalar consolidation of those national institutions that struggle to embrace both urban and rural areas in the early twenty-first century. A study of domestic trade networks in conflict-affected states will complement existing institutional studies of state political (Paris and Sisk, 2009, Reno, 2003), judiciary (Rajagopal, 2005), military and police (Davis, 2006, Skendaj, 2014), or rebel (e.g., Arjona et al., 2015, Lidow, 2010, 2016, Petersen, 2001, Weinstein, 2007) organizations.

Third, violent rural–urban conflicts might be seen as forerunners—indeed, accelerators—of urban violence. Rapid urbanization in Latin American and the Caribbean arguably precipitated the region's current urban violence trends involving gangs, illicit trafficking, and persistently high homicide rates. Understanding urban violence in Latin American and Caribbean countries offers insights that will in time become relevant to now-urbanizing regions. Additionally, though, rural–urban conflicts may influence future forms of urban violence, and better understanding the former may increase our understanding of the latter.

As I will discuss in Section 1.4 ("The Road Less Travelled"), this book's emphasis on the trade relationship between city and country is its primary distinguishing feature. Many other works focus on explanatory variables dealing with the structure, funding, and organization of rebel groups (Arjona, Kasfir, and Mampilly, 2015, Lidow, 2016, Weinstein, 2007). That is a fascinating and, for the past decade or so, mainstream line of inquiry to take. Such studies have been very useful in explaining civilian abuse (or good treatment) in rebel-held areas, for instance. But few works to date, if any, describe the economic relationship itself as an explanatory condition of

violent conflict. This lacuna implies that important types of explanations and predictions have not been possible—explanations and predictions that this book affords. The book thereby informs the formulation of tailored rural development (e.g., agricultural extension services, farm and rural livelihoods subsidies) and transportation infrastructure policy with an eye toward conflict prevention and de-escalation.

I include here just one example to underscore the value of the chosen analytical framework. Boko Haram is notorious for its ill treatment of civilians in Bornu, Yobe, Adamawa, and other northeastern states of Nigeria—and, increasingly, across the borders into Niger, Chad, and Cameroon. Over the course of 2014, the group became the world's deadliest terrorist group—outstripping even the Islamic State and helping to grow the terrorist death toll in Nigeria by an astounding 300 percent to 7,512 fatalities (IEP, 2015). This trend would seem at odds with the group's relatively cohesive organizational structure, which often (though by no means always) implies restraint in employing violence against civilians. This fact might be explained as a function of its funding: Boko Haram does not depend on taxation of locals to a great extent (except in a more predatory, coercive, and extortionist sense). Rather, it was supported from abroad by Al-Qaeda and, later, the Islamic State following its 2015 pledge of allegiance to that group. Boko Haram is also a large regional player in the international illicit trades for guns, drugs, and humans. It also generates a revenue stream from kidnapping. All of these activities require organizational hierarchy: the group cannot collect ransoms, for instance, if it cannot prevent its own operatives from killing its kidnapping victims. But they do not necessarily require local popular support.

However, existing actor-based theories of violent conflict—theories that focus on why certain people or organizations choose to employ violence or restraint—would fail to understand why, though it claims to have outgrown the capacity of the Nigerian state, Boko Haram does not actively seek to capture sequentially larger towns and cities. Indeed, Boko Haram's rural nomadism may partly be responsible for its classification as a "terrorist organization," whilst similar West African groups that do capture and hold territory are often termed "insurgents," "rebels," "separatists," etc. The group did operate a headquarters out of the Bornu's capital, Maidiguri, but were driven out by the Nigerian military in 2013. Rather than mount a strong defense of their headquarters and attempt to establish a true citywide occupation, Boko Haram retreated and overran numerous small towns in the vicinity with little resistance from government forces (Chothia, 2013). Since then, Boko Haram has operated a loose network that has remained largely rural.

This strategy is not due to lack of capacity: the group has launched massive and sustained military operations against towns and cities. These include

Baga, a town of 10,000 that hosted a large military base housing the Multinational Joint Task Force composed of forces from Nigeria, Niger, Chad, and Cameroon. Despite fierce civilian resistance, Boko Haram killed up to 2,000 people there, and captured six armored personnel carriers and 4,000 rounds of ammunition from the Nigerian military (Fessy, 2015). Rural-based groups waging campaigns of terror against civilians have striven progressively to occupy towns and cities in Liberia and Sierra Leone, as have other "Jihadist" groups in Mali such as Ansar Dine. Why not in northern Nigeria?

Actor-based theories also fail to explain why the combat frontier between Boko Haram-controlled territory and state-held territory is so chaotic and unpredictable. The combat frontier between state-controlled areas and Maoist forces in India—also very hierarchical organizations with records of massive violence against civilians—is neat and (most often) clearly understood by residents on both sides.

This book provides explanations for both of these outcomes: Boko Haram is located in an area defined in spatio-economic terms by multipolarity: there is a fairly reticulated road network that leads to a number of different secondary cities (Kano, Jos, Kaduna, Maidiguri, Maroa), and even more than one primate city (Abuja and N'Djamena) in various countries. This more multipolar (less radial) network implies weak monopoly/monopsony forces at work when selling or transiting goods, and high patrol costs associated with city capture. Therefore, the economic incentive structure militates against such territorial capture.

On the other hand, the horizontal (i.e., vertically cleaved) social structure implies in my analysis that traders linking urban and rebel-held urban areas will most likely be drawn from the ethnic background of the rural area they are serving. This is in opposition to Maoist India, for instance, where longer-distance trade is dominated by higher-caste individuals. The latter situation, in my analysis, creates greater potential for borders to be established via elite-elite bargains; the former situation creates a more dissolute bargaining environment in which each trader must be dealt with individually, requiring interception by individual rebel operatives.

This book offers a timely explanation. The contemporary era is marked by, among other phenomena, rapid urbanization (Robert Muggah, 2012) and a lurking fear that the political-economic foundations of nation-states are crumbling (Fabio Armao, 2009b). In this context, the economic and social underpinnings of rural–urban trade and conflict are crucial to our understanding of hyper-urbanization and the changing nature of organized violence in modern society.

Today, the least-developed countries are the least urbanized, though they are urbanizing quickly—the percentage of sub-Saharan Africa's population living in urban areas is projected to grow from 37 percent today to over 60 percent by 2050 (United Nations Population Division, 2007). They also

tend to be the most afflicted by such rural–urban violence. Violent internecine conflicts directly caused well over 20 million deaths between the end of World War II and the early 2000s (Fearon and Laitin, 2003). The number of active conflicts in the world has risen from around 15 in 1946 to 40 in 2014, the most recent yearly data available as of this writing from the Uppsala Conflict Data Program. It reached a peak of just over 50 in the early 1990s following the end of the Cold War and, after a lull in the early 2000s, has begun to creep upward again. Most of these wars are either "internal conflicts" or—a more recently surging phenomenon—"internationalized internal conflicts" (Uppsala Conflict Data Program, 2016). In other words, civil wars predominate in the contemporary era.

Mary Kaldor (1999) has famously argued that these are "new wars," characterized by new means: a greater mix of state and non-state actors, increased use of identity politics as a popular mobilizer, reliance on political rather than territorial control, and greater reliance on predatory finance. For instance, of the 118 violent conflicts occurring between 1989 and 2004, all but seven have involved non-state armed actors (Harbom and Wallensteen, 2005). Others, such as Mats Utas (2012) have problematized Kaldor's distinction, postulating that the wars themselves are not so different as their settings, having shifted largely to the Global South in an era characterized by globalized financial, commodities, information, and even human flows. The Soufan Group (2015) estimates, for example, that 27,000 foreign-born jihadis responded to the Islamic State's June 2014 self-proclamation of the caliphate by travelling to Syria and Iraq. They hailed from 86 different countries from Tunisia, Saudi Arabia, and Russia, to France and the UK—all of which figured in the top ten most prolific sending countries.

States split by a rural–urban conflict are unable not only to consolidate their ostensible Weberian monopoly on the use of coercive force over the full extent of their nominal territories, but also their monopoly on taxation. Associated governance problems are thought to retard or warp development processes, thereby sowing the seeds of future violence (Collier and Hoeffler, 2000). What is it about economic relations between core and periphery—and specifically about the types of trade institutions that serve as the interface between the two—that renders state control and legitimation so problematic? Moreover, how can we influence these rural–urban relations so as to strengthen the legitimacy of the state?[15] A focus on institutions is in line

[15] By asking this question, I am not necessarily taking it for granted that the nation-state can or should be the only, or even the predominant, scalar unit of governance. In an increasingly interlinked world, modes of governance will be required that are able to coordinate civil society groups, corporations, transnational networks, regional cooperation organizations, and other non-state actors that may come to perform some or many of the functions of a state at scales specific to the problems they seek to address. On social movements and transnational NGOs in globalized society, see the seminal article by Lynch (1998) and Rajagopal (2003).

with the growing consensus that economic development trajectories depend largely upon them (see, e.g., Acemoglu et al., 2001, Rodrik, 2003), and that development processes and conflict dynamics are intimately intertwined (though just precisely how remains debated) (Humphreys, 2003).

A focus on the rural–urban interface is arguably more analytically tractable than a dichotomy of state versus non-state targets that is sometimes made (see, e.g., Ghani and Iyer, 2010). There are growing gray areas of non-state actors supported, encouraged, or employed by the state on the one hand (e.g., Armao, 2009a, Davis, 2007). In the case of the Syrian conflict, for instance, numerous pro-government militias operate in coordination with the government of Bashar Al-Assad. These are ideologically multifarious, including left-wing militias like the Syrian Social Nationalist Party and the Syrian Resistance, as well as religiously defined Shia militias like Lebanon-based Hezbollah and the Liwa Abu al-Fadhal al-Abbas. Moreover, rebel groups may form quasi-governments that eventually come to be recognized in some capacity (Bruderlein, 2000). Timor-Leste's Frente Revolucionária de Timor-Leste Independente or FReTiLIn, which was transmuted from an armed resistance group into a political party following that country's independence, is not exceptional, but rather quite typical. Even the Taliban have an office in Qatar that was established in a "neutral location" for the purpose of holding talks with Western officials to secure, among other things, a dignified NATO withdraw from Afghanistan and certain Guantanamo prisoner exchanges (BBC News, 2013).

1.4 The Road Less Travelled

As mentioned on p. 14, this book's central question seeks to fill an important gap: there are few works I am aware of that specifically attempt to explain conflict between an urban-based state and its rural-based challengers by reference to economic trade relationships linking one side to the other. Rather, there are two separate bodies of scholarship that do not typically overlap: one deals with rural–urban trade, internal migration, and development; the other with the determinants of violence and behavior of violent actors.

On the one hand, there is a long history of thought that deals with development and the economic relationship between city and hinterland. The suspicion that urbanization may affect hinterlands differently in developed versus developing countries goes back at least to the classification of "generative" and "parasitic" cities (Hoselitz, 1955). The fields of development economics and economic geography have continued to emphasize the importance of the

rural-urban relationship to economic growth, regional exports, incomes, and poverty alleviation (Evans, 2001, 1992, Fujita et al., 1999, Harris and Todaro, 1970, Hinderlink and Titus, 2001, Krugman, 1991, Momen, 2006, Tacoli, 1998). But scholars have been more silent on its relationship to violent conflict.[16]

On the other hand, in recent years, academics focusing on violent internal conflict have tended to explore the behavior of parties to the conflict (the state and its challengers), whether separately or in dynamic competition to one another, to the relative neglect of important aspects of the social, spatial, and economic relationships between the two. A number of books have attempted to explain, for instance, the structure and behavior of rebel organizations—whether focusing on the role of conflict financing (Ballentine and Nitzschke, 2003, Berdal and Malone, 2000, Collier, Elliott, Hegre, Hoeffler, Reynal-Querol, and Sambanis, 2003), or those of community support (e.g., Petersen, 2001, Scott, 1976, Wood, 2003). Weinstein (2007) did an admirable job of knitting together both of these factors into a convincing explanation of why some rebel groups show restraint in the use of violence against civilians whilst others do not. He posited that groups well-endowed with economic resources (such as diamonds in Sierra Leone) would tend to adopt opportunistic, extractive, and coercive strategies for a variety of reasons having to do with the development of their organizational structure. For one, they may be best able to grow by offering recruits pecuniary rewards. This implies that leaders, even if they are themselves idealistic, may be unable to distinguish between idealistic and opportunistic recruits. Leaders may also therefore permit a certain amount of indiscipline in the ranks to maintain and grow membership. Weinstein argues that groups with large social endowments, on the other hand, rely on long-term promises and non-material interests to recruit members to their cause. They must obtain resources by striking deals with civilians, and are therefore incentivized to establish norms and disciplinary mechanisms that ensure the restraint of violence.[17] And many authors have explored the ways in which strategic competition between rebel groups and governments may entail civilian casualties (e.g., Ferguson et al., 2016, Fielding and Shortland, 2012).

[16] By contrast, a number of scholars have noted the increasingly urban character of violence globally, though these ruminations tend to ignore either the etiology of urban violence as an outgrowing of rural–urban conflict, or the ongoing relationship of city and hinterland (Davis, 2012, Denyer Willis, 2015, Jütersonke et al., 2009, Athena Kolbe et al., 2012, Robert Muggah, 2012, Robert Muggah and Oliver Jütersonke, 2008, Robert Muggah et al., 2010, Dennis Rodgers, 2004, 2007).

[17] Other authors also emphasize the structure of rebel financing—for instance, whether finances are top-down (meaning pay can be withheld by leaders) or bottom-up (meaning subordinates are asked to kick up revenues to leaders) (Lidow, 2016).

Some books have explored certain relationships between center and periphery in conflict. The influential work of Stathis Kalyvas (2006) made an admirable contribution to understanding the variations of violence in the social context of spatial terrain contested between two armed political forces (one of which happened to be the urban-based state in his study). He argues counter-intuitively that violence is worst not at the contested intersection between state-governed and rebel-held territory. Rather, he indicates two points on either side of that line where a combination of citizens' willingness to denounce supporters of the opposite side and the capacity to bring organized violence to bear on those opposition supporters meet in a deadly confluence. However, Kalyvas's framework does not consider the urban center as functionally or economically distinct from the rural—the two just "happen" to be the seats of the legitimate and rival governments, respectively.

William Reno (1999) investigated the role of trade networks in warlord politics. He contends that West African warlords were able to hold onto power in the midst of crumbling state apparatuses because of their military control of trade networks (one reason that warlord concubines frequently became prominent traders in Liberia, for instance), but does not address how differences in the social and spatial morphology of those networks influenced the course of those conflicts. And Jeffrey Herbst (2000) expounds on the problem of projecting political control to the full extent of nominal state boundaries in the case of African states. He argues that reliance on rainfed agriculture on the sparsely populated, pre-colonization African continent implied severe limits to the state's ability to levy taxes, as farmers might simply pull up stakes and leave. States reciprocally failed to develop robust institutions dedicated to the provision of public goods and services. He emphasizes the African state as a series of concentric circles, centered on urban areas and characterized by progressively decaying enforcement power, but the discussion is largely historical and does not delve into much detail on the role of rural–urban trade or its taxation.

Other scholarly books and edited volumes have focused on the role of conflict in galvanizing (or challenging) state formation and socio-political organization more generally (e.g., Bakonyi and de Guevara, 2011, Bates, 2002, 2008, Davis and Pereira, 2003, Laitin, 2007, Pansters, 2012, Reno, 2011, Slantchev, 2011, Tilly, 1992). Robert H. Bates (2002) is notable for his parsimonious argument that state violence is the only credible guarantor for private property security, and is therefore necessary for investment and long-term prosperity at the national level. He also argues (2008) that the overriding factor determining the onset of civil wars in many late-twentieth-century sub-Saharan African countries involved a choice made by the national government as to how to employ coercive force: to

enforce taxation in exchange for public goods provision (and therefore greater future societal prosperity and future tax revenues) on the one hand, or simple predation for short-term gain on the other. This followed on the heels of earlier works from the era of the Washington Consensus that focused on the determinants of rent-seeking and even predatory states (e.g., Moselle and Polak, 2001).[18]

Moreover, an increasing number of scholarly and policy works now focus on transnational and non-state groups (Davis, 2009, Koonings and Kruijt, 2004) and urban violence (Davis and de Duren, 2011, Koonings and Kruijt, 2007, Muggah and Jütersonke, 2008, World Bank, 2011) as threats to state stability. The recent book by Graham Denyer Willis (2015) epitomizes the recent focus on violence as a manifestation of "hybrid sovereignty" in urban spaces, exploring the relationship between the forces of the state (in this case, the São Paolo police force) and non-state armed actors (here, the organized gang Primeiro Comando da Capital (PCC)). He argues that what is ultimately considered to be a societally "acceptable" killing hinges on a tacit, consensual agreement between these two, ostensibly antagonistic forces.[19] His book continues a growing trend to explore topics at the intersection of urban planning, criminology, and sociology (Davis, 2007, Davis and de Duren, 2011, Davis and Pereira, 2003, Muggah et al., 2013), much of which takes for granted rural–urban conflicts that precipitated the extreme urbanization that undergirds urban violence in the developing world.

Finally, a long, vast, and ever-growing body of literature explores the environmental and economic contexts that may incubate violence more generally. This literature far outstrips the scope of this book, and so I will limit mentions of works to a very few evocative examples. A number of studies have drawn connections between climate change and violent conflict (Buhaug et al., 2010, 2014, Hsiang et al., 2013), though the causal mechanisms linking phenomena like rainfall variability and temperature rises to violence remain highly debated (e.g., Gleditsch and Urdal, 2002, Homer-Dixon, 1994, Linke et al.,

[18] The focus on "rent-seeking" in fashion during the Washington Consensus manifested an underlying neoliberal belief that "government was the problem" in underdevelopment of the Global South (Kennedy, 2006). Ironically, the pendulum has arguably now swung to the other extreme; some scholars deem that the framework for understanding civil war as distilled by Collier (2007) inherently biases us against "greedy" rebels and favors incumbent states, regardless of the legitimacy they may have earned or undermined via their development or human rights records (McDougal, 2013).

[19] A somewhat similar, though more politically orientated, argument is made by Rios (2014, 2015) in explaining the dramatic rise in homicide rates in Mexico in the post-2006 period. She argues that prior to the rise, a *pax narcotica* had been enforceable because a tacit government-sanctioned protection racket for the drug trade could be enforced in an essentially one-party (Institutional Revolutionary Party, or PRI) system in a way that was no longer feasible when the National Action Party (PAN) won the presidency and various state and local government seats in 2006.

2015). And supply shocks have been related to violence in places like Mexico, where the presumed accessibility of firearms (Chicoine, 2011, Dube et al., 2013, McDougal et al., 2014b), price of maize (Dube et al., 2014), and supplies of Colombian cocaine (Castillo et al., 2013) have all been shown to affect rates of homicide, presumably by altering the (opportunity) costs and expected payoffs of violence.[20]

Again, this book's focus on the economic and social ties between urban center and rural periphery as an important determinant of the morphology and effects of violent conflict is unique. It places an important spotlight on inherently spatial nature of the economy, the state, and conflicts motivated by control over each.

1.5 The Road Map

The structure of this book might be conceived of, albeit inelegantly, as a passing Bactrian camel, with the head and neck, two humps, and rump the principal parts. The head and neck represent this introduction and the next chapter respectively—collectively Part I. The head has the capacity to judge where we will look for nutritive content. Much like the camel's neck, the second chapter of Part I, titled "Production and Predation," slopes downward into the depths of theory, introducing us to the analytical system that will allow us to digest empirical observations and raw data. Parts II ("Violence Acts on Production Networks") and III ("Production Networks Act on Violent Actors")—the two humps—contain two distinct bundles of extracted findings on two related, but distinct, phenomena. Finally, Part IV—the rump—will finish processing our inputs, hopefully provide the beast with the muscle power to gallop onward to new pastures, and bring the project to a nice, tapering close at the tail end.

Given the circularity of development and conflict processes mentioned in Section 1.2: ("Traders and Raiders"), this book will tackle the issue of economic governance across the rural–urban interface in two principal parts—the humps—based on radically different cases and parts of the world. Part II examines how violence impacts on rural–urban production networks in Liberia and Sierra Leone, West Africa. Part III examines how rural–urban linkages in turn impact on the behavior of insurgent groups in Maoist-affected areas of India. The West African cases lend themselves to the study of the impact of violence on production networks because the scale of the violence

[20] For more on small arms and ammunition prices, see Killicoat (2006), Brauer and Muggah (2006), McDougal et al. (2014), and Marsh (2015).

during the civil wars relative to that of industry was vastly overwhelming—so much so that industry and its associated production networks had to go to enormous, and very evident lengths to survive. This makes it easy for an outside observer to note what changed. Conversely, the Indian case lends itself to the study of the impact of trade networks on violent actors because the local economy is so robust. Maoist India makes a good case study for examining the reverse phenomenon because India has a robust industrial sector that draws on rural inputs, and it has a more locally funded insurgency. This implies that the effects of such rural–urban trade on insurgent groups might be more easily appreciated there than in a countries like Liberia or Sierra Leone, where rebel groups depended more on outside funds through the international sale of smuggled diamonds or illegal timber. Moreover, India, as a fast-growing middle-income country, defies the conventional wisdom on rural insurgencies as springing up only in poor, economically stagnant countries—and highlights the value of a production network lens to analyze conflict economies.

In the concluding Part IV, the two cases will be compared and contrasted, since West African trade networks are informed by an unranked society, while Indian trade networks are informed by a ranked society. I will argue in the conclusion that this difference accounts for the fact that cities became the principal targets of West African rebel movements, while the Maoist insurgency in India (although rhetorically espousing such a goal) does not prey upon urban targets. I will also consider ways in which this analysis may bear on urbanized violence.

The chapter sequence will be as follows. Chapter 2, constituting the remainder of Part I, is highly theoretical in nature. Those with allergies to theory may wish, in the fashion of "choose your own adventure" books, to skip it. In Chapter 2, I will (1) define some basic terms and concepts by which to describe the spatial economy ("Town and Country"); (2) lay out the case for using production networks as a lens on economic governance ("Through the Looking Glass"); (3) make a philosophical argument that a dialectic characterized by the twin processes of intensification and extensification, associated to a certain degree with production and predation respectively, is at the heart of state consolidation or disintegration ("The Extensification–Intensification Dialectic"); and (4) present a formal model of production and predation in a simulated core-periphery relationship ("A Simple Model of Rural–Urban Predation").

In addition to fitting into a larger architecture of this book, the empirical Chapters (3–7) are also designed as standalone units. Part II, comprising Chapters 3–5, analyzes the effect of violent conflict on production networks in Liberia (and, to a lesser extent, Sierra Leone). In Chapter 3, I argue that successful adaptation of production firms to civil war is predicated upon a sort

of just-in-time production requiring the strategic dispersal of production networks to avoid predation. In doing so, I also contend that the social norms of family and clan solidarity help to ensure the survival of production firms despite rebel intentions to predate them, as information about possible rebel strikes is transferred through family networks and then widely shared in the urban trade hub. This helps explain why so many firms actually survived the war. In Chapter 4, I argue that trade networks in Liberia, reacting to the threat of violence, tended to induce changes in local production firms in ways reminiscent of state-led industrialization, localizing supply chains and the labor force. In effect, trade networks were able to switch from primarily distribution networks, to a system of supply chains drawing on rural agricultural produce, as well. Moreover, this process is enabled by the production of new knowledge at the factory level. In Chapter 5, I contend that rural–urban trade networks in Liberia and Sierra Leone splintered into radial networks along ethnic lines—and that for this reason, monopolistic rural–urban linkages were exacerbated as networks became increasingly disembedded from one another.

Part III (Chapters 6 and 7) examines the effect of production and trade networks on the intensity of violence employed by the Maoist insurgency in India, and on morphology of the combat frontier itself. In Chapter 6, I show that reticulated trade networks—networks that link rural areas to multiple urban markets—tend to discourage rebel groups from violent and predatory behavior, undermining a would-be drive toward cities. In Chapter 7, I show that the social ways in which traders are integrated into the local communities they service bear on the character of contestation between urban and rural areas. I describe how the caste system in Maoist India prevents the localization of the trading classes in Maoist-held tribal areas that occurred in Sierra Leone and Liberia, making for less monopolistic rural–urban relations, and a much more abrupt economic transition between government-controlled and rebel-held territories. That "sticking point" contributes to persistent territorial deadlock in India, whereas the morphology of radial trading networks in West Africa allowed for the combat frontier between opposing factions to "slide" from countryside to city.

In Part IV, Chapter 8 puts the two cases in conversation with one another, comparing and contrasting trade network morphologies. I will re-introduce the state as an explicit actor affecting and affected by these trade networks, point to questions raised by the research, and hint at policy recommendations to come from it. Chapter 9 will look ahead towards an increasingly urbanized future for both the developed and developing worlds, and consider how this book's conclusions may influence trends in violence when (and if) rural–urban conflicts will have become a thing of the past.

References

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review*, 91(5): 1369–401.

André, Catherine and Jean-Philippe Plateau. 1998. "Land Relations under Unbearable Stress: Rwanda Caught in the Malthusian Trap." *Journal of Economic Behavior and Organization*, 34(1): 1–47.

Arjona, Ana, Nelson Kasfir, and Zachariah Mampilly (eds). 2015. *Rebel Governance in Civil War*. Cambridge: Cambridge University Press.

Armao, Fabio. 2009a. "The Market of Violence: From Monopoly to Free Competition," *Security in the West: Evolution of a Concept*. Milan: Vita e Pensiero.

Armao, Fabio. 2009b. "Political Geographies at the Dawn of the Millennium: Stein Rokkan's 'Basic Model' Revisited." Unpublished manuscript.

Bakonyi, Jutta and Berit Bliesmann de Guevara (eds). 2011. *A Micro-Sociology of Violence: Deciphering Patterns and Dynamics of Collective Violence*. New York: Routledge.

Ballentine, Karen and Heiko Nitzschke. 2003. "Beyond Greed and Grievance: Policy Lessons from Studies in the Political Economy of Armed Conflict." *Program on Economic Agendas in Civil Wars (EACW)*. New York: International Peace Academy.

Bates, Robert H. 2002. *Violence and Prosperity: The Political Economy of Development*. New York: W.W. Norton & Co.

Bates, Robert H. 2008. *When Things Fell Apart: State Failure in Late-Century Africa*. New York: Cambridge University Press.

BBC News. 2013. "How Qatar Came to Host the Taliban," BBC News. London, June 22.

BBC News. 2016. "Islamic State Group: Crisis in Seven Charts." BBC News. London, May 26.

BBC News Online. 2007. "Baghdad: Mapping the Violence." BBC News. London. March 20. Available at: http://news.bbc.co.uk/2/shared/spl/hi/in_depth/baghdad_navigator/ (accessed November 30, 2016).

Berdal, Mats and David M. Malone. 2000. *Greed and Grievance: Economic Agendas in Civil Wars*. Boulder: Lynne Rienner.

Brauer, Jurgen and Robert Muggah. 2006. "Completing the Circle: Building a Theory of Small Arms Demand." *Contemporary Security Policy*, 27(1): 138–54.

Bruderlein, Claude. 2000. "The Role of Non-State Armed Actors in Building Human Security: The Case of Armed Groups in Intra-State Wars." https://statebuildingmonitor.files.wordpress.com/2012/01/the-role-of-non-state-actors-in-building-human-security.pdf (accessed November 30, 2016).

Buhaug, Halvard, Håvard Hegre, and Håvard Strand. 2010. "Sensitivity Analysis of Climate Variability and Civil War." Working Papers. Oslo: P. R. I. Oslo.

Buhaug, Halvard, J. Nordkvelle, T. Bernauer, T. Böhmelt, M. Brzoska, J. W. Busby, A. Ciccone, H. Fjelde, E. Gartzke, Nils Petter Gleditsch, et al. 2014. "One Effect to Rule Them All? A Comment on Climate and Conflict." *Climatic Change*, 127(3–4): 391–7.

Castillo, Juan Camilo, Daniel Mejía, and Pascual Restrepo. 2013. "Scarcity without Leviathan: The Violent Effects of Cocaine Supply Shortages in the Mexican Drug War." Working Paper Series. Washington, DC: Center for Global Development.

Chicoine, Luke. 2011. *Exporting the Second Amendment: U.S. Assault Weapons and the Homicide Rate in Mexico*. South Bend, IN: University of Notre Dame.

Chothia, Farouk. 2013. "Boko Haram Timeline: From Preachers to Slave Raiders." BBC News, May 15.

Coase, Ronald. 1960. "The Problem of Social Cost." *The Journal of Law and Economics*, 3(1), 1–44.

Collier, Paul. 1999. "On the Economic Consequences of Civil War." *Oxford Economic Papers*, 51: 168–83.

Collier, Paul. 2007. *The Bottom Billion: Why the Poorest Countries Are Falling Behind and What Can Be Done About It*. New York: Oxford University Press.

Collier, Paul, V. L. Elliott, Havard Hegre, Anke Hoeffler, Marta Reynal-Querol, and Nicholas Sambanis. 2003. *Breaking the Conflict Trap: Civil War and Development*. Washington, DC: World Bank.

Collier, Paul and Anke Hoeffler. 2000. *Greed and Grievance in Civil War*. Washington, DC: World Bank.

Davis, Diane E. 2006. "Undermining the Rule of Law: Democratization and the Dark Side of Police Reform in Mexico." *Latin American Politics and Society*, 48(1): 55–86.

Davis, Diane E. 2007. *Policing, Regime Change, and Democracy: Lessons from the Case of Mexico*. London: Crisis States Research Center.

Davis, Diane E. 2009. "Non-State Armed Actors, New Imagined Communities, and Shifting Patterns of Sovereignty and Insecurity." *Contemporary Security Policy*, 30(2): 221–45.

Davis, Diane E. 2012. *Urban Resilience in Situations of Chronic Violence*. Washington, DC: USAID.

Davis, Diane E. and Libertun de Duren (eds). 2011. *Cities and Sovereignty: Identity Politics in Urban Spaces*. Bloomington: Indiana University Press.

Davis, Diane E. and Anthony W. Pereira (eds). 2003. *Irregular Armed Forces and Their Role in Politics and State Formation*. New York: Cambridge University Press.

Deaton, Angus. 2010. "Instruments, Randomization, and Learning about Development." *Journal of Economic Literature*, 48: 422–55.

Denyer Willis, Graham. 2015. *The Killing Consensus: Police, Organized Crime, and the Regulation of Life and Death in Urban Brazil*. Oakland: University of California Press.

Dube, Arindrajit, Oeindrila Dube, and Omar García-Ponce. 2013. "Cross-Border Spillover: U.S. Gun Laws and Violence in Mexico." *American Political Science Review*, 107(3): 397–417.

Dube, Oeindrila, Omar García-Ponce, and Kevin Thom. 2014. "From Maize to Haze: Agricultural Shocks and the Growth of the Mexican Drug Sector." *Working Paper Series*. Washington, DC: Center for Global Development.

Dunne, J. Paul, Luca Pieroni, and Giorgio d'Agostino. 2013. "Military Spending and the Falling Rate of Profit in the US." *International Conference on Economics and Security*. Stockholm: Stockholm International Peace Research Institute (SIPRI).

Esser, Daniel. 2004. "The City as Arena, Hub and Prey: Patterns of Violence in Kabul and Karachi." *Environment and Urbanization*, 16(2): 31–8.

Evans, Hugh Emrys. 1992. "A Virtuous Circle Model of Rural–Urban Development: Evidence from a Kenyan Small Town and Its Hinterland." *The Journal of Development Studies*, 28(4): 640–67.

Evans, Hugh Emrys. 2001. "Regional Development through Rural–Urban Linikages: The Parul Programme in Indonesia." In W. B. Stöhr, J. S. Edralin, and D. Mani, *New Regional Development Paradigms (Nrdp): Volume 3: Decentralization Governance, and the New Planning for Local-Level Development*. Westport, CT: Greenwood Press, 79–94.

Fearon, James and David Laitin. 2003. "Ethnicity, Insurgency and Civil War." *American Political Science Review*, 97: 75–90.

Ferguson, James. 1994 [1990]. *The Anti-Politics Machine: "Development," Depoliticization, and Bureaucratic Power in Lesotho*. Minneapolis: University of Minnesota Press.

Ferguson, Neil T., Maren M. Michaelsen, and Topher L. McDougal. 2016. "From Pax Narcótica to Guerra Pública: Explaining Civilian Violence in Mexico's Illicit Drug War." In C. H. Anderton and J. Brauer, *Economic Aspects of Genocide, Mass Killing, and Their Prevention*. New York: Oxford University Press.

Fessy, Thomas. 2015. "Boko Haram Attack: What Happened in Baga?" BBC News. London, February 2.

Fielding, David and Anja Shortland. 2012. "The Dynamics of Terror During the Peruvian Civil War." *Journal of Peace Research*, 49(6): 847–62.

Fujita, Masahisa, Paul Krugman, and Anthony J. Venables. 1999. *The Spatial Economy: Cities, Regions, and International Trade*. Cambridge, MA: MIT Press.

Galtung, Johan. 1969. "Violence, Peace, and Peace Research." *The Journal of Peace Research*, 6: 167–91.

Ghani, Ejaz and Lakshmi Iyer. 2010. "Conflict and Development: Lessons from South Asia." *Economic Premise*. Washington, DC: World Bank, 1–8.

Gleditsch, Nils Petter and Henrik Urdal. 2002. "Ecoviolence? Links between Population Growth, Environmental Scarcity and Violent Conflict in Thomas Homer-Dixon's Work." *Journal of International Affairs*, 56(1): 283–302.

Grünewald, Francois and Éric Levron. 2004. *Villes En Guerre Et Guerres En Ville*. Paris: Karthala.

Harbom, Lotta and Peter Wallensteen. 2005. "Armed Conflict and Its International Dimensions, 1946–2004." *Journal of Peace Research*, 42(5): 623–35.

Harris, John R. and Michael P. Todaro. 1970. "Migration, Unemployment and Development: A Two-Sector Analysis." *The American Economic Review*, 60(1): 127–42.

Hecimovic, Arnel. 2016. "Iraqi Troops Advance on Islamic State-Held Fallujah." *Guardian*. London, May 24.

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

Hinderlink, Jan and Milan Titus. 2001. "Small Towns and Regional Development: Major Findings and Policy Implications from Comparative Research." *Urban Studies*, 39(3): 379–91.

Hirshleifer, Jack. 1994. "The Dark Side of the Force." *Economic Inquiry*, 32, 1–10.

Homer-Dixon, Thomas. 1994. "Environmental Scarcities and Violent Conflict: Evidence from Cases." *International Security*, 19(1): 4–40.

Horowitz, Donald. 2000. *Ethnic Groups in Conflict*. Berkeley: University of California Press.

Hoselitz, B. F. 1955. "Generative and Parasitic Cities." *Economic Development and Cultural Change*, 3: 278–94.

Hsiang, Solomon M., Marshall Burke, and Edward Miguel. 2013. "Quantifying the Influence of Climate on Human Conflict." *Science*, 341(6151).

Humphreys, Macartan. 2003. *Economics and Violent Conflict*. Cambridge, MA: Harvard Program on Humanitarian Policy and Conflict Research.

IEP. 2015. *Global Terrorism Index 2015*. Sydney: Institute for Economics and Peace.

Jütersonke, Oliver, Robert Muggah, and Dennis Rodgers. 2009. "Gangs, Urban Violence and Security Interventions in Central America." *Security Dialogue*, 40(4), 1–25.

Kabamba, Patience. 2008. "Alternative Ethnique à l'etat Post-Colonial: Cas des Nande de Butembo et des Luba de Mbuji-Mayi en Republique Democratique du Congo." *Canadian Journal of African Studies*, 42(1): 129–63.

Kaldor, Mary. 1999. *New and Old Wars: Organized Violence in a Global Era*. Stanford: Stanford University Press.

Kalyvas, Stathis. 2006. *The Logic of Violence in Civil War*. New York: Cambridge University Press.

Katzenstein, Mary, Smitu Kothari, and Uday Mehta. 2001. "Social Movement Politics in India: Institutions, Interests, and Identities." In A. Kohli (ed.), *The Success of India's Democracy*. Cambridge: Cambridge University Press, 242–69.

Kennedy, David. 2006. "The 'Rule of Law,' Political Choices, and Development Common Sense." In D. M. Trubek and A. Santos, *The New Law and Economic Development: A Critical Appraisal*. New York: Cambridge University Press, 95–173.

Killicoat, Phillip. 2006. *Weaponomics: The Economics of Small Arms*. Oxford: Oxford University.

Koh, Harold Hongjui. 2004. "Jefferson Memorial Lecture: Transnational Legal Process after September 11th." *Berkeley Journal of International Law*, 22, 337–54.

Kolbe, Athena, Robert Muggah, and Marie N. Puccia. 2012. *The Economic Costs of Violent Crime in Urban Haiti: Result from Monthly Household Surveys, August 2011–July 2012*. Rio de Janeiro: Igarape Institute.

Koonings, Kees and Dirk Kruijt (eds). 2004. *Armed Actors: Organised Violence and State Failure in Latin America*. New York: Palgrave Macmillan.

Koonings, Kees and Dirk Kruijt. 2007. "Fractured Cities, Second Class Citizenship, and Urban Violence." In K. Koonings and D. Kruijt, *Fractured Cities: Social Exclusion, Urban Violence, and Contested Spaces in Latin America*. New York: Zed Books, 1–22.

Laitin, David. 2007. *Nations, States, and Violence*. New York: Oxford University Press.

Le Billon, Philippe. 2001. "The Political Ecology of War: Natural Resources and Armed Conflicts." *Political Geography*, 20, 561–84.

Lidow, Nicholai. 2010. "Rebel Governance and Civilian Abuse: Comparing Liberia's Rebels Using Satellite Data." *American Political Science Association Conference, 2–5 September*. Washinton, DC.

Lidow, Nicholai. 2016. *Violent Order: Rebel Organization and Liberia's Civil War*. Cambridge: Cambridge University Press.

Linke, Andrew M., J. T. McCabe, J. O'Loughlin, J. Tir, and F. W. Witmer. 2015. "Rainfall Variability and Violence in Rural Kenya: Investigating the Effects of Drought and the Role of Local Institutions with Survey Data." *Global Environmental Change*, 34, 35–47.

Lynch, Cecilia. 1998. "Social Movements and the Problem of Globalization." *Alternatives*, 23(2): 149–93.

Marsh, Nicholas. 2015. "Firearms Seizures and Trafficking: A 'Local' Phenomenon." *The Strategic Trade Review*, 1(1): 73–87.

McDougal, Topher L. 2011. "Law of the Landless: The Dalit Bid for Land Redistribution in Gujarat, India." *Journal of Law and Development*, 4(1): 141–67.

McDougal, Topher L. 2013. "The Trilemma of Promoting Economic Justice at War's End." In D. Sharp, *Justice and Economic Violence in Transition*. New York: Springer, 51–77.

McDougal, Topher L., Athena Kolbe, Robert Muggah, and Nic Marsh. 2014a. "Ammunition Leakage from Military to Civilian Markets: Market Price Evidence from Haiti, 2004–2012," *SADO Working Paper Series*. San Diego: Small Arms Data Observatory.

McDougal, Topher L., David A. Shirk, Robert Muggah, and John H. Patterson. 2014b. "The Way of the Gun: Estimating Firearms Traffic across the U.S.–Mexico Border." *Economic Geography*, 15(2): 292–327.

Momen, Saiful. 2006. "Toward Synergistic Rural–Urban Development: The Experience of the Ruran-Urban Partnership Programme (Rupp) in Nepal." *Working Paper Series on Rural–Urban Interactions and Livelihood Strategies*. International Institute for Environment and Development.

Moselle, Boaz and Benjamin Polak. 2001. "A Model of a Predatory State." *Law, Economics, and Organization*, 17(1): 1–33.

Muggah, Robert. 2012. "Researching the Urban Dilemma: Urbanization, Poverty and Violence," Ottowa: IDRC.

Muggah, Robert, Ami Carpenter, and Topher L. McDougal. 2013. "The Inconvenient Truth about Gang Truces in the Americas." *InSight Crime,* December 5.

Muggah, Robert and Oliver Jütersonke (eds). 2008. *Endemic Urban Violence and Public Security*. Ottawa: DFAIT.

Muggah, Robert, Oliver Jütersonke, Ryan Murray, Edward Rees, and James Scambary. 2010. *Urban Violence in an Urban Village: A Case Study of Dili, Timor-Leste*. Geneva: Geneva Declaration Secretariat.

Nietschke, Heiko. 2003. "Transforming War Economies: Challenges for Peacemaking and Peacebuilding," *Meeting Notes—December 31, 2003*. New York: International Peace Institute.

Oliver, Roland and Anthony Atmore. 1994 [1967]. *Africa since 1800*. New York: Cambridge University Press.

Olson, Mancur. 1993. "Dictatorship, Democracy, and Development." *American Political Science Review*, 87(3): 567–76.

Omvedt, Gail. 1994. *Dalits and the Democratic Revolution: Dr. Ambedkar and the Dalit Movement in Colonial India*. Thousand Oaks: Sage Press.

Pansters, Wil G. 2012. *Violence, Coercion, and Statemaking in 20th-Century Mexico: The Other Half of the Centaur*. Stanford: Stanford University Press.

Paris, Roland and Timothy D. Sisk. 2009. "Introduction: Understanding the Contradiction of Postwar Statebuilding." In R. Paris and T. D. Sisk, *The Dilemmas of Statebuilding: Confronting the Contradictions of Postwar Peace Operations*. New York: Routledge.

Petersen, Roger. 2001. *Resistance and Rebellion: Lessons from Eastern Europe*. New York: Cambridge University Press.

Pugh, Michael and Neil Cooper. 2004. *War Economies in a Regional Context: Challenges of Transformation*. Boulder: Lynne Rienner.

Raeymaekers, Timothy. 2004. "The Political Economy of Beni-Lubero." In K. Vlassenroot and T. Raeymaekers, *Conflict and Social Transformation in Eastern Dr Congo*. Gent: Academia Press Scientific.

Rajagopal, Balakrishnan. 2003. *International Law from Below: Development, Social Movements, and Third-World Resistance*. New York: Cambridge University Press.

Rajagopal, Balakrishnan. 2005. "Limits of Law in Counter-Hegemonic Globalization: The Indian Supreme Court and the Narmada Valley Struggle." In B. de Sousa Santa and C. A. Rodríguez-Garavito, *Law and Globalization from Below: Towards a Cosmopolitan Legality*. Cambridge: Cambridge University Press, 183–217.

Reno, William. 1997. "African Weak States and Commercial Alliances." *African Affairs*, 96, 165–85.

Reno, William. 1999. *Warlord Politics and African States*. Boulder: Lynne Rienner Publishers.

Reno, William. 2003. "Political Networks in a Failing State: The Roots and Future of Violent Conflict in Sierra Leone." *Internationale Politik und Gesellschaft*, 2, 44–66.

Reno, William. 2011. *Warfare in Independent Africa: New Approaches to African History*. New York: Cambridge University Press.

Riddell, Tom. 1986. "Marxism and Military Spending." *Journal of Post Keynesian Economics*, 8(4), 574–80.

Rios, Viridiana. 2014. "The Role of Drug-Related Violence and Extortion in Promoting Mexican Migration." *Latin American Research Review*, 49(3): 199–217.

Rios, Viridiana. 2015. "How Government Coordination Controlled Organized Crime: The Case of Mexico's Cocaine Markets." *Journal of Conflict Resolution*, 59(8): 1433–54.

Rodgers, Dennis. 2004. "Disembedding the City: Crime, Insecurity, and Spatial Organisation in Managua, Nicaragua." *Environment and Urbanisation*, 16(2): 113–24.

Rodgers, Dennis. 2007. "Slum Wars of the 21st Century: The New Geography of Conflict in Central America," *Crisis States Research Centre Working Papers*. London: London School of Economics.

Rodrik, Dani. 2003. *In Search of Prosperity: Analytic Narratives on Economic Growth*. Princeton: Princeton University Press.

Romer, Paul M. 1994. "The Origins of Endogenous Growth." *Journal of Economic Perspectives*, 8(1): 3–22.

Ross, Michael. 2004. "How Do Natural Resources Influence Civil War? Evidence from Thirteen Cases." *International Organization*, 58: 35–67.

Schimmel, Annemarie. 1992. *Islam: An Introduction*. Albany: State University of New York Press.

Scott, James. 1976. *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. New Haven: Yale University Press.

Sharp, Dustin (ed.). 2013. *Justice and Economic Violence in Transition*. New York: Springer Publications.

Shortland, Anja, Katerina Christopoulou, and Charalampos Makatsuris. 2013. "War and Famine, Peace and Light? The Economic Dynamics of Conflict in Somalia 1993–2009." *Journal of Peace Research*, 50(5): 545–61.

Skendaj, Elton. 2014. *Creating Kosovo: International Oversight and the Making of Ethical Institutions*. Cornell: Cornell University Press.

Slantchev, Branislav L. 2011. *Military Threats: The Costs of Coercion and the Price of Peace*. New York: Cambridge University Press.

Solomon, Christiana. 2006. "The Role of Women in Economic Transformation: Market Women in Sierra Leone." *Conflict, Security and Development*, 6(3): 411–23.

Tacoli, Cecilia. 1998. "Rural–Urban Interactions: A Guide to the Literature." *Environment and Urbanization*, 10(1): 147–66.

The Economist. 2006. "India's Naxalites: A Specter Haunting India," *The Economist*, April 17.

The Soufan Group. 2015. *Foreign Fighters: An Updated Assessment of the Flow of Foreign Fighters into Syria and Iraq*. New York: The Soufan Group.

Thornton, Phil. 2006. *Restless Souls: Rebels, Refugees, Medics and Misfits on the Thai-Burma Border*. Bangkok: Asia Press.

Tilly, Charles. 1992. *Coercion, Capital, and European States*. Cambridge: Basil Blackwell.

Tuchman, Barbara W. 1978. *A Distant Mirror: The Calamitous 14th Century*. New York: Ballantine Books.

UN Department of Economic and Social Affairs. 2008. *World Urbanization Prospects: The 2007 Revision*. (ESA/P/WP/205). New York: United Nations.

Uppsala Conflict Data Program. 2016. *Active Conflicts since WWII*. Uppsala: Uppsala Universitet.

Utas, Mats. 2012. "Introduction: Bigmanity and Network Governance in Africa." In M. Utas, *African Conflicts and Informal Power: Big Men and Networks*. London: Zed Books, 1–34.

Verpoorten, Marijke and Pieter Serneels. 2010. "The Medium Term Economic Impact of Human Capital Destruction: The Case of Rwanda." In R. Caruso, *Jan Tinbergen European Peace Science Conference*. Amsterdam, Netherlands: Tinbergen Institute.

Weiner, Myron. 2001. "The Struggle for Equality: Caste in Indian Politics." In A. Kohli, *The Success of India's Democracy*. Cambridge: Cambridge University Press, 193–225.

Weinstein, Jeremy. 2002. *The Structure of Rebel Organizations: Implications for Post-Conflict Reconstruction*. Washington, DC: World Bank.

Weinstein, Jeremy. 2007. *Inside Rebellion: The Politics of Insurgent Violence*. New York: Cambridge University Press.

Wood, Elizabeth Jean. 2003. *Insurgent Collective Action and Civil War in El Salvador*. New York: Cambridge University Press.

World Bank. 2011. *Violence in the City: Understanding and Supporting Community Responses to Urban Violence*. Washington, DC: World Bank.

2

Production and Predation

2.1 Town and Country

This chapter will outline some conceptual frameworks for understanding why and under what circumstances rural dwellers might take up their pitchforks against urban centers. But it is necessary at the outset to establish some common definitions of the terms and concepts employed. These include such questions as: What constitutes an "urban" versus a "rural" area? What is the "rural–urban interface" (or "divide") meant to convey? What are "city systems," and what roles do primate cities, secondary cities, and smaller towns play in the ecology of a national economy? And what is the relationship between the "rural–urban interface" and the "combat frontier"? This section cannot possibly answer all of these questions comprehensively, but will briefly sketch some possible responses.

"Rural" and "urban" areas are largely defined spatio-demographically, by sectoral composition, or administratively. In the first instance, urban areas might be designated as such once a certain density threshold is reached or by the absolute population. In the second instance, an urban area might have to meet a criterion pertaining to the percentage of the workforce engaged in non-agricultural sectors. In the third instance, a town with a certain governance structure sanctioned by the state may qualify as de jure urban. The Census of India, for instance, designates all places as urban towns that either (1) are governed by "a municipality, corporation, cantonment board or notified town area committee, etc.," or (2) concomitantly satisfy three spatial-demographic and sectoral criteria: (a) a minimum population of 5,000, (b) at least 75 percent of the male workforce engaged in non-agricultural activities, and (c) population density exceeding 40 persons per square kilometer (Census of India, 2011, 1).

Similarly, rural–urban linkages may also span physical distances or sectors (Tacoli, 1998). However, rural and urban economies are increasingly recognized as being interwoven at the household and regional levels. Livelihood

strategies may exhibit substantial heterogeneity defined both in terms of sector and spatial diversification. Sector diversification might include urban gardeners or rural service providers. Spatial diversification might comprise such cases as seasonal laborers in India who might migrate between urban areas for construction work and rural farms for harvesting. This spatial and sectoral interweaving has provided an impetus for holistic design of development programs at the regional level and has gained strong support among both academics and policymakers (Momen, 2006).

Given this economic interconnectedness that may manifest even at the household level, this book tends to use the phrase "rural–urban interface" in preference to "rural–urban divide." To be sure, there are very real differences—economic, political, social, and cultural—between rural and urban areas that can create rifts or divides between the two. Urban areas with industrial and services export bases enjoy what economists call "increasing returns to scale," which means essentially that the larger the urban economies are, the faster they grow.[1] Rural areas do not. The provision of public goods and services, from transportation to education to utilities, is more efficient and generally more effective and appreciated in urban areas than rural ones. Accordingly, urban residents may tend to be friendlier toward government institutions that might provide such services than rural residents. Nevertheless, robust rural–urban connections have historically been regarded as critical to economic and political development.

Urban areas run the gamut from small, rural-serving towns to megacities. "Systems of cities"—composed, e.g., of primate cities, secondary cities, and tertiary cities and towns—can be a useful conceptual framework insofar as it may imply different roles within a national economy (Heilbrun, 1981, 87–116).[2] Moreover, city systems are linked by infrastructure networks that correspond to the trade network hardware referred to above. The city systems view highlights again that the "rural–urban" dichotomy is not so dichotomous after all. At times, I will use the alternative formulation

[1] Romer (1994), Arthur (1989), and Krugman (1991b) were among the first to model increasing returns to scale in urban industrial areas. Increasing returns to scale can be explained solely as a function of pecuniary agglomeration economies resulting from the presence of specialized intermediary industries in the presence of transportation costs (see e.g. Fujita, Krugman, and Venables, 1999, Krugman, 1998). They may also arise due to pecuniary economies in a "thick" labor market: laid-off workers lose less time and pay before they find a new employer, and expanding firms lose less time and productivity before they can find new workers. Finally, increasing returns to scale may be also explained by non-pecuniary economies associated with technological innovation—call it the café effect, expanded upon popularly by Glaeser (2012). All of these mechanisms were originally discussed by Marshall (1920 [1890], Ch. 10).

[2] The city systems view of a unified economic territory came to manifest in economic geography as series of geometric models of city distribution—notably those of Lösch (1954 [1944]) and Christaller (1966 [1933])—that became known as Central Place Theory.

"core–periphery," which intuitively allows that urban areas, too, may be peripheral in the city system.

What then is the role of the smallest towns, sometimes termed "rural agglomerations"? Given few rural–urban linkages,[3] rural agglomerations might be seen simply as distribution centers for goods and services from higher-order cities, and way stations for rural products destined for the urban sector. Such a view (that, e.g., of Hinderlink and Titus, 2001) sees small towns as a substitute for other means of linking the countryside with higher-order cities, such as highway networks. They are, in essence, a manifestation of transportation and coordination costs. However, if strong backward and forward linkages span the rural–urban interface, rural agglomerations—especially those with manufacturing and processing clusters—retain and recycle value added within the region (Lanjouw and Feder, 2001). Rising agricultural wages then give rise to more non-farm industry and attract labor to towns. This in turn raises the demand for farm products and generates farm inputs. The resulting rural–urban endogeneity is termed the "virtuous circle" (Evans, 1992, Irz et al., 2001, Mellor, 1976), but might theoretically develop into a vicious one if productivity in one sector were falling rather than rising.

Another question in city systems concerns the role of secondary cities. Academics have disagreed over whether national economic growth can best be promoted by fostering private sector activities in the largest cities with the densest social networks (De Bresson and Amesse, 1991), or whether secondary cities should be seen as vital players in promoting long-term growth, equity, and political harmony over a more multi-polar network (Markusen, 1999). Markusen argues that large metropolitan centers increasingly exhibit not just the usual diseconomies of scale (congestion, factor costs, lack of natural amenities), but, even more alarming, a decaying environment for innovating firms. As international trade grows, certain regional companies grow disproportionately large, putting other local firms out of business. This general drift toward oligopoly will in turn stifle innovation, since large, oligopolistic firms will raise industry entry costs for local newcomers in an attempt to preserve their profits. In the long run, this strategy damages the national economy as a whole. Therefore, Markusen argues, second-tier cities may serve not only to keep diseconomies of scale at bay in larger cities by generally dispersing the population, but also to provide a friendlier environment for innovative firms that are out-competed in larger markets.

[3] Linkages refer to sequential economic transactions that collectively constitute a supply chain. They may be business-to-business transactions, business-to-consumer transactions, or transactions involving a government in one of those roles. "Upstream" linkages refer to transactions draw on inputs from "up" the supply chain. "Downstream" linkages refer to the converse: those involving the sale of outputs. "Rural–urban linkages" then refers to linkages that span from the rural space or sector to the urban or vice versa.

An open question, however, is to what extent this discussion is applicable in underdeveloped economies. Hoselitz (1955) makes the point that many cities in the Global South were founded as entrepots for resource extraction, and continue to function accordingly. In this view, many cities in the Global South are more "parasitic" than "generative"—they actually deplete the national economy by facilitating the sorts of unequal exchange hypothesized by neo-Marxist economists and dependency theorists (Bacha, 1978, Cardoso and Faletto, 1979, Nurkse, 1953, Prebisch, 1959, 1950).

A more recent and nuanced argument comes from Davis (2004). She contends that a strong rural landowner class is important in industrialization more generally, and particularly in the tricky transition from import substitution industrialization (ISI) to export-oriented industrialization (EOI). (This is the transition away from incubating nascent industries with import tariffs and other protections to a more liberalized trade; for more on this, see Chapter 4: "What do civil war and state-led industrialization have in common?") In her view, an economically important rural electorate demands accountability and effectiveness for ISI policies that disproportionately benefit urban sectors, thereby preparing national industries to compete in the export-led industrialization model. It was this mechanism, in Davis's view, that "disciplined" the Korean government—and the missing puzzle piece in Latin America's largely failed efforts to do the same in the late twentieth century.

Finally, what is the relationship between the rural–urban interface and the combat frontier? That question recurs throughout this book, most proximately below in Section 2.4: "A simple model of rural–urban predation." Descriptively, though, the combat frontier simply refers to the contested space that separates territory held by one violent actor from that held by another. It may move according to the military successes and failures of the combatants, as well as strategic decisions and necessities acted upon unilaterally.

To the extent that a violent actor does not control territory, the meaning of the concept of a combat frontier as used in this book evaporates. Depending on the definition used, terrorists might fall in this category. William R. Polk (2008) views terrorism as the preliminary stage of insurgency, when insurgents are "too few to fight as guerillas," and so, in the words of Mao Tse-tung, "behave as fish and seek shelter and sustenance among the people, the sea." Criminal organizations may not hold territory at all, or as in the case of Mexico's drug trafficking organizations and Brazil's urban gangs, enjoy a sort of "hybrid governance" of territory with official government. Indeed, many criminal organizations rely on government provision of public services such as roads and utilities in order to operate effectively (de Groot and Shortland, 2010, Ferguson, Michaelsen, and McDougal, 2016).

2.2 Through the Looking Glass

Despite the civilian carnage unleashed on Monrovia in 2003, only a couple of firms that I studied for this book reported any deaths among their direct employees. Why this apparent discrepancy in the risk of violence among the urban population at large versus those involved with the production of goods? The answer to that question lies in the trade linkages between urban businesses and their rural markets for supplies and customers. Traders animate the economic networks that condition the rural–urban interface—the spatial and economic relationship between agricultural and non-agricultural modes of production—and are at the very core of this book's argument.

In this study, I will repeatedly stress the importance of the morphology of production networks in allowing local economies to adapt to conflict, as well as in establishing the structural conditions for conflicts to intensify and move in space. These production networks—also sometimes called supply and distribution chains, value-added chains, or in a more restricted sense, trade networks—enable the sequential procedures by which raw materials are obtained, processed, transformed into a product, and then delivered to the final consumer. They consist fundamentally of nodes and connections: nodes are locations where work is applied to transform the product and add value, while connections are the routes the product must travel in space in order to arrive at the next node. I contend that this lens renders rural–urban conflict particularly comprehensible, as it allows us to see the violent appropriation of goods as a product of different models of rural–urban interface. The latter are models that we need not take as immutable, and which policymakers may be able to adjust to head off impending crisis or attenuate ongoing violence.

How does the "production network" lens differ from that which is normally applied by development economists to the issue of conflict? The rise in the prominence of internecine conflict has prompted Paul Collier, an eminent former World Bank economist, to declare those nations housing the "bottom billion" income earners to be persisting in a reality of the "fourteenth century: civil war, plague, ignorance," in which the political institutions of the state are "falling behind and falling apart" (Collier, 2007, 3). The same economist describes the rest of the world as comfortingly belonging to one of two families: developed countries (representing roughly the richest one billion people), or those on track to become so (the four billion in between). There are several implicit assumptions in this view—let's call it orthodox development economics—of economic development and governance. First, the country is unquestionably assumed to be the natural unit for assessing economic governance and development. Second, "development" writ large is unequivocally considered an antidote for violent conflict—poor people tend to kill each

other.[4] Third, and related to the second, development failures are seen essentially as a function of factors unrelated to development successes, or to the broader processes of worldwide economic development and globalization. Thus, some countries can be viewed as atavistic, "fourteenth-century" anachronisms, rather than displaying prototypically modern symptoms of global capitalism. Such a view focuses attention on the "Othered" category of "failed/failing states," "weak states," or "fragile states" as the places of origin of the world's worst problems—human trafficking, terrorism, ethnic conflict, genocide—to the exclusion of systemic causes (such as growing industrial demand for raw materials), and elicits in the popular imagination an almost medical desire to "cure" such pathologies.[5]

The standard development economics view may seem reassuring in some ways: things are bad in failing states, but somewhat remote and ultimately fixable with the right policies and enough international aid. Moreover, the most introspection required on the part of the rich or upwardly-mobile world—or perhaps "industrialized and industrializing world" is more apt (Amsden, 2007, 2008 (manuscript), 2001)—is what percentage of industrial-world GDP should be channeled to international aid (Sachs, 2005), rather than how the industrialized/ing world's continued economic growth and political hegemony may undermine attempts at economic governance elsewhere. This all fits in perfectly with Hirschman's (1981) definition of development economics as rejecting the monoeconomics claim while asserting the mutual benefit claim. Rejecting the monoeconomics claim suggests that not all economies behave in the same ways; specifically, developing economies require specially formulated policies and, possibly, aid. Asserting the mutual benefit claim implies that international trade is always mutually beneficial, no matter the disparities in levels of industrialization, elasticities of demand for export products, or monopoly power of transnational corporations that may exist between trading partners.

The production network analysis in this book takes as its point of departure a suspicion of monolithic generalizations offered by standard development economics, such as "poverty equals violence." An historian might justify this suspicion with an appeal to the historical record on development and violent conflict. The bloodiest episodes in human history occurred in the last three

[4] This remark is rather flippant, but conveys the central point that the poor have lower opportunity costs of conflict than do the rich (see e.g. Collier et al., 2003). Strangely, this idea has mostly been interpreted to imply that absolute poverty causes conflict, rather than poverty relative to other countries, groups, or individuals, as most theoretical models of conflict imply (e.g. Hirshleifer, 1991). Neither one of these views takes livelihoods to be at all embedded in a socio-cultural medium that facilitates the process of fulfilling one's wants and needs (e.g. Azar, 1990, Scott, 1976).

[5] See, for instance, Ghani and Lockhart's (2008) aptly titled *Fixing Failed States: A Framework for Rebuilding a Fractured World*.

centuries at the hands of industrialized or industrializing powers, for example, the Crimean and Franco-Prussian wars, colonial excesses and genocides worldwide such as occurred in the Congo Free State (see e.g. Hochschild, 1999), World Wars I and II, Stalin's brutal command economy industrialization,[6] and China's Great Leap Forward. In other words, the contemporary view that violent conflicts are mostly restricted to poor countries is an artifact of a short collective memory.

In the contemporary period, urban criminal networks have globalized, facilitating and benefiting from illicit transnational trades (Naím, 2006). A "production networks" lens is appropriate to understanding such business models. Davis (2009) and Armao (2009b) describe complex processes wherein transnational non-state armed groups compete in a global marketplace to recruit members into "new imagined communities." The Islamic State's online media campaign is a prime example. What began as rural-based insurgencies across the Global South have become a truly global problem. Non-state armed groups may tap into transnational networks of loyalty and support. They may challenge the nation-state's exclusive rights to employ coercive force and levy taxes, and thereby its legitimacy and sovereignty. They may ultimately destabilize hopes of peace based on the Westphalian system of world politico-economic governance as epitomized in its most universal expression, the United Nations (see Fry, 2007).

In this view, the threat of the "bottom billion" is not just that these countries might export their problems abroad. It is that they may be a harbinger of things to come. The threat of becoming a narco- or mafia-state, for example, is not limited to poor places like Afghanistan (Scheich, 2008) or West African countries like Guinea-Bissau (Mazzitelli, 2007); it is spreading to middle-income countries like Mexico, Serbia, and Russia.[7] While this book does not purport to explain such phenomena, it might nevertheless shed indirect light on them.

2.3 The Extensification-Intensification Dialectic

A key to placing the following chapters in a unifying theoretical framework is to introduce the role of the state, and indeed the mechanisms and processes of

[6] An interesting counterpoint is made by historian Timothy Snyder (2010), who argues that the vast numbers of people killed in Eastern Europe before, during and after World War II were not so much casualties of a modern state apparatus, as caught in the middle of a bloody struggle between would-be colonial powers. He emphasizes that the majority of the deaths were people shot in fields, not "processed" in facilities operated by the modernizing state.

[7] Recent estimates of the size of "shadow markets" for legal goods alone (i.e. excluding illicit trades) as a percentage of GDP are slightly higher in "transitional" countries (39%) than in "developing" countries (37%), though falling in developed countries (15%) (Schneider, 2007).

economic governance more generally. I approach the topic with a vaguely Althusserian epistemology, in which a material dialectic describes the theory of knowledge as production (Althusser and Balibar, 1998, 24). In Althusserian fashion, the basic dialectic is not between subject and object (as it might be interpreted to be with Hegel or early Marxist writings), since Althusser's reading of Marx's epistemological break with Hegel rejects that distinction. Rather, I propose that this dialectic takes the form of intensification and extensification, which find their synthesis in the new production of knowledge and its accompanying suite of social norms. Intensification occurs when society seeks to make optimal use of the resources at hand through increases in production efficiencies and innovations. The latter in turn requires more raw materials whose extraction promotes the emergence of new forms of extensification. In that mode, society becomes a predatory consumer of the reified Other, which it views solely as exploitable resource—an imperial colony, for example. Intensification and extensification may roughly equate to production and predation, respectively—making and taking. Predation is what one economist called "the dark side of the force" (Hirshleifer, 1994)—the flip side of the production coin. The notion of knowledge as production is then complicated by this production/predation dichotomy: intensification requires new resource inputs and new forms of extensification. Extensification may provoke a backlash, whereby those stripped of their resources and means of livelihood prey upon the production networks of the aggressor. This process finds its synthesis in the production of new knowledge, giving rise to new forms of intensification. I will say more about the choice of epistemology below, in Section 2.3.4.

What defines a material dialectic based on the twin processes of extensification and intensification? These terms refer to the processes by which a group attempts to grow its well-being either by (1) appropriating, or expropriating, more resources (expansion or "extensification"); or (2) making more intensive use of existing resources ("intensification" via production or technological change). I argue that state-formation in the modern era essentially crystallizes around, and is made possible by, extreme intensification—traditionally in the form of industrialization—and that the apparatuses at the scalar level of the state are continuously stabilized by way of legal mechanisms promoting the hallmark of intensification (i.e. economic producers and production more generally) over that of extensification (i.e. economic predators and predation more generally).[8] I argue this is the case despite the fact that, in true dialectic

[8] This statement applies only to the peculiar case of the modern nation state. Other state forms have coalesced around economic growth fueled by outwardly-directed extensification in the form of conquest—e.g. empire-building and colonialism. Historical debate continues as to whether the capital influxes from colonialism gave rise to the Industrial Revolution in Britain and Europe, and the beginning of the great successive waves of technological intensification that swept the globe

fashion, intensification contains the seeds of extensification and vice versa.[9] The state, however, channels extensifying drives toward "Others" that are considered expendable, unproductive, or sustainably harvested. It thereby links sanctioned extensification to its own internal intensification processes. Processes to channel extensification may or may not target humans; agriculture and forestry, for example, predate ecological systems.

This dialectic network approach focuses our attention on the processes of economic globalization whereby production network nodes are increasingly geographically linked by low-cost connections. This phenomenon has come to catalyze, intensify, or protract civil conflict in natural resource-rich peripheries, and exacerbates the conditions under which the state project and economic nationalism can coexist. This approach also focuses our attention on the economic, social, and historical contexts in which goods are traded and fought over, rather than on the goods themselves.

For instance, a large body of economics, political science, and geography literature has sprung up around natural resources and conflict. It seeks to identify those "conflict resources" that are associated with the initiation or fueling of violence. Conflict resources are defined by one economic geographer as "natural resources whose control, exploitation, trade, taxation, or protection contribute to, or benefit from the context of, armed conflict" (Le Billon, 2001). Various scholars have debated the differential effects on conflict onset, duration, and intensity of: oil, timber, alluvial diamonds, kimberlitic diamonds, illicit drugs, etc. (Humphreys, 2005, Klare, 2002, Ross, 2004a, 2002, 2004b). These scholars have highlighted various pertinent characteristics of "conflict resources" in what appears from the outside to be a contest to coin the clunkiest term. Characteristics include: the degree of collective action required in their extraction, harvesting, processing, and transport (Lidow, 2008a); their value-to-weight ratio (sometimes called "lootability") (Lidow, 2008b, Snyder, 2004); the degree to which their processing or transport may be obstructed (sometimes called "obstructability") (Ross, 2004a); whether their source is concentrated ("point source") or diffused (Le Billon, 2001); their distance from the center of power (Le Billon, 2001); and their scarcity or abundance (Mildner et al., 2011). Some argue that non-lootable resources like oil made separatist conflict onset more likely, whilst "lootable" resources like gemstones, although not responsible for conflict onset, tended to prolong

between the late 1700s and the present. If so, this would be a case of an extensification dynamic birthing an intensification dynamic.

[9] Cohen et al. (1981, cited in Mohammed Ayoob, 2007, 96) likewise argue that:

> [t]he extent to which an expansion of the state power will generate collective violence depends on the *level* of state of state power prior to that expansion . . . The lower the initial level of state power, the stronger the relationship between the *rate* of state expansion and collective violence.

and intensify conflict (Humphreys, 2005, Ross, 2004a, 2002, 2004b). Others claim that "scarce" or "high-value" resources, like diamonds, were associated with wars of "greed," while "abundant" or "livelihood" resources, like water and land, were associated with wars of "grievance" (Mildner, Lauster, and Wodni, 2011).

In any case, by focusing on "conflict resources," scholars have arguably attributed inherent qualities to inanimate materials, alchemically imbuing them with almost metaphysical conflict-causing properties. In terms of micro-economic theory, abundance should never boost demand for a resource or fuel conflict, for instance. (The reverse is usually the case, unless abundance becomes its own advertising and creates its own demand.) Rather, the *spatial scale* of scarcity might be a more apt concept than abundance. Global scarcity and local abundance—as, for instance, in the case of alluvial diamonds in Sierra Leone—create a price discrepancy that potentially fuels violence via global market demand. By contrast, local scarcity and global abundance—say, water in Darfur or, increasingly, the American Southwest—might be associated with conflicts geared toward local redistribution.

The extensification-intensification dialectic takes the form of predation in the one case, and production in the latter. In this way, states whose territories contain many production network nodes to balance network connections are now considered stable (e.g. China), while those with few nodes and high-value connections are unstable (e.g. Sierra Leone's diamond mines and the trade networks established during its civil war), and those with almost no production nodes but very high-value connections have withered away almost completely (e.g. Somalia's state collapse in proximity to the world's most valuable sea trade route, and the predictable rise of pirate outfits). The fragile state becomes, in essence, a middleman state—reliant for its survival on selling the resources of its periphery. This is a classic form of the extensive state. India is an interesting contradiction, in which many nodes and obstructable connections coexist within the geospatial domain of the state. In any case, peripheral insurrection de facto limits the state's ability to raise revenue through peripheral "fire sales" to big corporations, and may in the particularly successful instances promote local intensification.

2.3.1 *Production, Predation, and the State*

The power and legitimacy of the modern sovereign state on the one hand, and the breadth and depth of economic industrialization on the other, have long been viewed as developing in tandem. The relationship between the state and industry might itself be termed "economic governance," and viewed in contradistinction to that between the state and the so-called "forces of order," which might be termed "physical governance." Even in what Rostow (1990 [1960]) termed the "pre-conditions for takeoff" in Western Europe,

there existed a growing philosophical alliance between the increasingly powerful and centralized absolutist governments on the one hand, and the nascent propensity to leverage scientific knowledge for technological applications (Rostow, 1990 [1960]). Francis Bacon asserted that, "...the true and lawful goal of the sciences is none other than this: that human life be endowed with new discoveries and powers." (Bacon, 1985 [1620]). His contemporary and liege, James I of England, famously declared that, "[t]he state of monarchy is the supremest thing upon earth: for kings are not only God's Lieutenants upon earth, and sit upon God's throne, but even by God himself they are called Gods" (King James I, 1609). Nor were these two notions merely concomitant, but found their union in the writing of Thomas Hobbes, that devotee of causal materialism who sought to harness scientific knowledge of the social realm the better to govern it—and thus avoid the much trumpeted "war, as of every man, against every man" that our natures would surely bring upon us otherwise. In developing this ideology, Hobbes paved the way for future social engineers like Henri de Saint-Simon and Auguste Comte.

The extensification–intensification dichotomy (if not yet dialectic, per se) was first developed in population biology and agricultural studies. The production-predation split was then stated more explicitly by the economist Vilfredo Pareto, who noted that "[t]he efforts of men are utilized in two different ways: they are directed toward the production or transformation of economic goods, or else to the appropriation of goods produced by others." (Pareto, 1966 [1902]). Not surprisingly, Thorstein Veblen, that early proponent of the application of evolutionary biology principles to economics, identified a similar behavioral polarity. He described industrial production (an instance of what I am terming intensification) as being predicated on a private property system initially constituted—in stark contrast to Locke's liberal view of property created through "mixing" one's labor with the land—through collective violent seizure of resources. Subsequent intra-group strife resulted in the private apportionments of the those resources pertaining "organically to the person or user" (Veblen, 1934). This appropriative process is what I term extensification.[10]

More recently, the production–predation dichotomy has been developed into a suite of formal static equilibrium models by proponents of rational conflict theory like Boulding (1962) and Schelling (1963), as well as proponents of the New Political Economy like Hirshleifer (1991), Grossman and Kim (1995), and Caruso (2008). The tradeoff complicated the standard neo-classical picture, which had taken for granted that resources would be allocated to

[10] Note that extensification in this sense need not forcibly expropriate goods from other people, but might entail expropriation from other species, as well. Seen in this way, even farming represents a form, however necessary and innocent, of the phenomenon.

production, and which therefore made an implicit elision between personal and public welfare, at least in the case of private goods. Smith's famous invisible hand would not necessarily go to work optimizing economic systems. The production–predation dichotomy also allowed modelers to endogenize institutions like property rights and contract enforcement, that had previously remained implicit in most models, but whose importance had been highlighted by Ronald Coase's (1960) seminal work in institutional economics. This was a departure arguably more radical even than that between perfectly competitive and oligopolistic markets. While both introduce non-cooperative game theory into economic markets, and thus the possibility for suboptimal welfare outcomes, not even the proponents of suboptimal market outcomes had ever endogenized property rights. That is, duopolistic competition might result in less total welfare than other arrangements, but the competition was never predatory and always "may the best man win."

Some economists have glossed over the production-predation split, in emphasizing the parallels between market competition and ecological competition, as though the market effectively harnessed the wild urge toward predation (see e.g. Lo, 2004). In fact, however, the "natural selection" that takes place among firms in developed world markets is strikingly different from that occurring in biological systems and in war zones for one primary reason: survival in the first instance is not predicated upon adaptation to predation, but *only* adaptation to competition over scarce resources. As Lorenz (1974 [1966]) points out, intraspecies aggression—motivated by competition over scarce resources—with the intention of killing is rare,[11] whereas interspecies (and economic) predation is specifically designed to kill. But the institutions of property rights and contract enforcement, so critical to the function of developed economies (Haggard et al., 2008), ensure that "the fittest" in industrial economies is defined solely on the basis of productivity and innovation serving the preferences of the consumer. In effect, the system is geared toward eliminating predation altogether *within the defined parameters of the state's Self*. Even so, the state may still engage in, and permit subordinate non-state actors to engage in, predation of the Other, for instance in imperial expansionist endeavors such as those carried out by the Dutch and British East India Companies in the seventeenth to nineteenth centuries. When one company acquires another, it cannot be equated with one animal eating another, or a rebel group looting an industrial factory, because the owners and shareholders of the acquired firm are compensated by law. No such reciprocity—even if the reciprocity is imperfect, as when radical information

[11] Except in humans who, he contends, have developed killing tools that outstrip their innate intuitive capacity for restraint.

or power asymmetries exist in the market—is the norm in strictly predator-prey relationships.

As radical a development as conflict models represented, though, the modeling schools nevertheless took the production–predation split as an epistemologically stable distinction, whereby any economic actor at any time had a fundamental choice to make as to how to allocate his resources: to take or to make (and sometimes, to help enforce state order (Grossman and Kim, 1995)). Nowhere was it acknowledged that predators and producers might grow more or less distinct from one another as institutional arrangements shifted over time. It is that deficiency that the extensification–intensification dialectic will seek to redress.

The basic intensification–extensification model might be said to apply to all human societies, but begins to oscillate more rapidly and powerfully in a capitalist system explicitly designed to maximize growth in a sort of Schopenhauer-ian exercise in "world-eating" expansionism. Predatory expansionism eventually spreads itself too thin to be a threat to those unconquered, and thus must concentrate the resources it has usurped in productive ventures. Sassen observes that

> the formation of the national state destabilized older hierarchies of scale, which typically were constituted through the practices and power projects of past eras, such as the colonial empires of the sixteenth and subsequent centuries and the medieval towns that dominated long-distance trading in certain parts of Europe in the fourteenth century . . . (Sassen, 2006, 14)

This depiction may describe a certain succession of hegemonic societal structures, but fails to distinguish between extensification- and intensification-based structures. Neither can it therefore give an adequate account of *why* certain scalar structures gained the ascendancy at certain times, while being undermined by competing structures at other scales at other times. For instance, long-distance trade routes of medieval Europe and Central and East Asia represented arteries of commodities linked rather radially to centers of demand in Europe and China. It is no surprise, then, that that these routes served as highways along which expansionist ("extensifying") and predatory empires grew, such as the Golden Horde and other Mongol empires, even threatening the European and Chinese centers of production and demand that gave rise to the Silk Road trade in the first place.

The end of the age of empire and the ascendancy of nation-state hegemony coincided not haphazardly with the rise of industrial production. This fact alone is reason enough to study industrial production in fragile states, and its relation with rural hinterlands. The nation was a natural scalar unit of cohesion for industrial development, specifically before widespread globalization, because the state had a monopoly on control over the rural–urban supply

chains necessary to fuel industrial production. It could therefore facilitate capitalism's inroads into non-capitalist enclaves—even paving its way by creating the necessary urbanizing labor forces by disrupting traditional modes of life (e.g. by way of the Enclosure Acts in England from 1760 to 1820[12]) or forcibly acquiring the necessary land (e.g. by way of the Mill Acts in the United States of the early 1800s,[13] not to mention their modern-day equivalents in fast-developing countries like India[14]) in rural areas. While intensification demanded the forcible reallocation of resources, the state maintained its monopoly on the use of force by effecting the actual extensification itself, rather than allowing industry to do so.[15] Such state-sponsored redistributive violence blurs the distinction sometimes made between *destructive* and *appropriative* violence on the one hand (which is often conflated with violence carried out by non-state actors), and *rule-making* violence on the other (the kind necessary to establish state sovereignty) (Vahabi, 2005). The state is ostensibly attempting to grow total welfare, but is doing so by destroying the livelihoods of a minority at the expense of its social contract. In essence, the state has chosen to define as "Other" those who do not participate in what Thorstein Veblen would have called the "machine process" and Weber the "spirit of capitalism," thereby throwing a sacrificial bone to the dogs of industry and channeling the drive to extensify.

The production–predation dichotomy is particularly intriguing when considering that industrial production seems to play a special role in diminishing the role and intensity of conflict. It is a truism in the modern world that violent conflict tends to occur in poor, non-industrialized countries more than rich, industrialized ones (Humphreys, 2003). However, industrial production in itself has a moderating effect on the onset of civil war: Caruso (2011) notes that the lagged manufactures unit value (MUV) index of a

[12] See Polanyi's (2001 [1945]) famous account of the evolution of the "Satanic Mill."

[13] Morton Horowitz (1977) describes a process whereby two very different conceptions of property rights came into conflict during the Industrial Revolution—one conservative and "anti-development," the other validating the appropriation of land for "higher and better" uses associated with boosting the "common weal." The transformation represented a veritable revolution in the doctrine of prescription, and eventually recognized the primacy and priority of developmental property uses even when they inflicted some "externality" on nearby landowners.

[14] Balakrishnan Rajagopal (2005) points out that the development process in India has relied upon massive projects entailing land appropriation, which might be viewed as a form of internal extensification. Large dam construction, such as that carried out on the Narmada River over the 1990s and early 2000s, displaced hundreds of thousands of tribal people with only the most tenuous connections to the capitalist system. More recently, the Indian Ministry of Rural Development has itself issued a report highly critical of the central government's aggressive land acquisition strategy, which, it claims, has ultimately alienated rural and tribal populations and thereby fueled Maoist violence against the state (Committee on State Agrarian Relations and Unfinished Task of Land Reforms, 2009).

[15] Foucault, however, points out that the state attempts to sanitize its violence and reduce the length of time that such violence is employed so as to minimize its felt weight on the citizenry (Michel Foucault, 1995 [1975]).

country is negatively and significantly related to the onset of civil war. He argues this phenomenon is due to particularities of value-adding processes in industrial manufacturing, which are difficult to appropriate by predatory means (Caruso, 2008).

If we accept that industry conditions the relationship between a state and its citizens, as argued above, then the specific forms industry takes can be thought also to condition the relationship between the state and its internal challengers. If we accept the results of the model above, there are at (the very) least two interpretations:

On the one hand, we might conclude that there is some process or set of production relations particular to industrial manufacturing that discourages violent actors. For instance, it might be hypothesized that because industrial manufacturing has the potential to draw on local rural economies for its raw materials, it encourages mutually beneficial relationships between rural and urban areas. Or again, it could be hypothesized that industrial manufacturing, because it depends on a complex web of supply and distribution chains to be able to add value, violent non-state actors cannot employ violence indiscriminately and still hope to be able to tax or extort them.

On the other hand, we might conclude that a stronger industrial sector (relative to the agricultural and service sectors) typically correlates to those countries where populations dependent on non-intensive production methods have already been decimated, as in the case of the United States and Native Americans, Australia and Aborigines, and arguably the ongoing process of tribal eradication occurring in India. The fewer the number of such non-adherents to the capitalist system, the less trouble they can cause.

Nor are these two interpretations strictly mutually exclusive.

2.3.2 *The State's Economic (Un)doing*

A number of political and economic theorists have alighted on economic governance over space as a key factor in explaining state coalescence—and contemporary fissiparous tendencies. Rokkan, for instance, asserts that "we cannot study [variations among political systems] . . . without looking into the structure of the space over which they exert some control" (Rokkan, 1999, 108). Most theorists emphasize the ability of the state to harness the productive capacity of its subjects or citizens, via the coercive use of force to impose the rule of law and raise taxes throughout a geographic territory. Most famously, Max Weber (2004 [1919]) and, more recently, Charles Tilly, have both stressed the monopoly on the use of force as a sine qua non of successful state formation. Tilly describes state-making as intimately linked to war-making (Tilly, 1985); in fact, the funding of war through taxation demands that the state create a reciprocal relationship between the rulers and the ruled by

granting rights to its new citizenry (Tilly, 1992). The conditions of sovereignty require that the state have a monopoly on the use of coercive force, such that it is the only entity making claims on its subjects' (now citizens') loyalty.

Other theorists have stressed work and the production side of the state-making equation. In *On the Medieval Origins of the Modern State*, for instance, Strayer (1970) asserts that only by working together over a long period can a group of people develop the institutions necessary to form a state—that is, by contributing in coordinated fashion to production, and thereby coming into constant contact, facilitated by transportation networks. For Strayer, production is linked to sedentism—a physical arrangement amenable to state control in a way that nomadic societies are not.[16] Like for Tilly, the transition from rulers' protection of the interests of the elite few to that of the masses is one of the telltale signs of statebuilding—a signpost that happens to culminate in the simultaneous onset of industrialization and the rise of the middle class as a political power.[17]

As described above, Veblen linked the ideas of force and work in a surprising way. Veblen famously posits that private property is not, as liberals since John Locke have been fond of claiming, justified by the laborer's work being "mixed" with a common good to confer value to which the laborer should be privately entitled. Rather, Veblen argued that private property originates from a particular group's collective violent seizure of another community's property (an act of extensification) which is then parceled out among its members through competition (potentially a drive toward greater resource efficiency and therefore process of intensification[18]). Private property therefore evolves as a manifestation of the ruling elite's attempt to remain unified after the initial seizure has taken place, in case violence is required again. Such, for Veblen, is the birth of large-scale political institutions that will come to compose the modern state (Veblen, 1934). Veblen also postulated that the

[16] Jeffrey Herbst (2000) contends, in an exception that seems to prove the rule, that dry-land farming practices in sub-Saharan Africa discouraged investment in irrigation systems and permitted a more footloose sedentism that made it difficult for kingdoms to grow into states. This was because attempts at taxation would simply push populations out of their military and political reach, since there were minimal sunk infrastructure costs associated with any particular locale. Moreover, the population of Africa was so sparse that proto-states' territories were typically defined more as decreasing concentric circles of overlapping influence, rather than mutually exclusive puzzle pieces in Cartesian space.

[17] This emphasis parallels Stein Rokkan's "basic" model of state formation, which places "inclusion of the masses" as the second of four steps. See p. 49.

[18] The development of private property from the commons can be conceived of as being primarily efficiency-driven. Demsetz (1967) would have it that the conversion to private property occurs when this captured efficiency is worth more than the cost of establishing such a system—there is in effect an "activation fee." In practice, however, this conversion may occur slowly over time. Ellickson (1993) notes that communal property regimes generate inefficiencies through lack of personal incentives to increase productivity; solve small to medium-scale, spatially bounded problems; and monitor trespassers and miscreants. Consequently, the more sophisticated methods of risk-sharing are also more efficient than the retention of communal property.

structure of the state was dictated by the fact that the warrior class in feudal society was able to, and did in fact, subjugate the productive class through conquest, thereby giving rise to lord and the serf, the laird and the crofter, the kshatriya zamindar and the sudra. The newly formed leisure class is what Ernest Gellner would later term the "warrior-and-scribe ruling class" of inward-oriented "agro-literate" societies. These societies could vary in their degrees of centralization, "gelding" (measures taken to prevent dynastic leadership), openness, and fusion between the warrior and scribe classes (Gellner, 2006 [1983], 14–16).

The work of Norbert Elias hints at another factor in state-building: rural–urban security. Elias (2000 [1994]) argues that the social mores that began to bind nations together in Europe emanated from centralizing courts, allowing for more intense, proximate relationships. Courts were not necessarily equated with urbanity (an implicit acknowledgment that Gellner's ruler might be more or less centralized), but they were equated with protection. The latter was, in turn, absolutely critical in establishing security for rural–urban trade that would build the hierarchical systems of cities that would come to define the modern nation state. This thought is clearly anticipated by Ambrogio Lorenzetti (c. 1290–1348), whose "Allegory of Good Government" was painted at the dawn of a new era of regional and international trade in Europe, following the Dark Ages of restricted knowledge of, and contact with, the outside world. The work depicts an angel called Security hovering over intercourse between city and country: the prince and his nobles riding out from the walls, peasants carrying rural goods into them. The angel is carrying a banner promising safety to those living under the rule of law. It signifies the birth of a (city-)state monopoly on the use of coercive force, used in service of fostering rural–urban mutualism. Moreover, it fits with another central aspect of state-building for Elias, which was the state's monopoly on taxation—based largely on rural–urban trade.[19] In any case, the state-building project once again points to the importance of rural–urban trade routes and the traders who manage that interface.

The nascent state's taxation requirement gave rise to a mutualism between the urban conquerors and the rural–urban traders who resided in the city, and who may (still) benefit themselves from monopolistic or monopsonistic trade relationships with the periphery (Fafchamps, 2001). As trade routes made greater inroads into rural life and rural populations began to urbanize, first colonial war-making abroad, and then the rise of robust urban industry,

[19] Later, trade taxation shifted to the international realm. It is widely acknowledged that import tariffs continued to serve as the primary source of national state revenues in the United States and Western Europe until the introduction of income taxes in the twentieth century (see e.g. Ha-Joon Chang, 2002).

sopped up excess labor in urban areas. These activities thereby stabilized a potentially volatile situation and sealed the compact between industry and the state. The modern incarnation of this state-industry compact is described at its cooperative best by Evans (1995).

Today's megacities of the Global South, which often dwarf the populations of their second-tier cousins, may increasingly find themselves challenged to provide such security for two reasons. First, the legitimate trade taking place there is often between low-value, inelastic local goods and high-value, elastic foreign-produced goods (see e.g. Prebisch, 1959). The illicit trades, by contrast, may involve high-value goods that are more elastic, to boot, meaning that as the world's income grows, so does the trade. Moreover, the Southern megacity is often relegated almost to a mere port of call—a place to break import bulk and containerize materials exports—rather than a site of its own value-adding processes. This function undermines the classic urban stability compact between state and industry. This is not a clear-cut distinction, but rather a gradient: cities in middle income countries and even the rich world have grown "disembedded" cultures consisting of non-state armed groups that thrive on transnational illicit trades and make non-state sovereignty appeals across global loyalty networks (Davis, 2009). Trade in what Hoselitz would call "parasitic" cities becomes not just an advantage, but a necessity for the local periphery—especially when traditional "autarkic" modes of livelihood have been sufficiently disrupted.[20]

How did the state consolidate its legitimacy? How is it eroding today? Stein Rokkan's answer to the first question is that the phases of state-building were (1) allocation of resources by a proto-state (usually via urban markets), (2) generative participation in the market (again, usually a rural–urban phenomenon), (3) inclusion of the masses under the protective umbrella of state institutions, and (4) state construction through centralizing institutions. To the second question, Fabio Armao answers: Rokkan's model is now unraveling, self-deconstructing in the reverse of the order originally described by Rokkan (Armao, 2009b). Accordingly, Armao describes four processes that work to undo state legitimacy: (1) state deconstruction through decentralization of government function, (2) expulsion of the masses from under the protective umbrella, (3) parasitical participation, and (4) violent allocation of resources. Armao believes this to be an explanation for Saskia Sassen's claim that "[g]lobal processes and formations can be, and are, destabilizing the scalar hierarchy of the national state" (Sassen, 2007, 14).

[20] Hoselitz's (1955) theory of generative and parasitic cities described relations that amounted to positive-sum games between rural and urban areas, and those that were zero-sum games. The latter were found in what Evans (1995) would later call "predatory states" such as Zaire.

This model is conceptually exciting, and a more satisfying framework for violent conflict and state formation than the more popularly held (and optimistic) notion that national states represent a sort of "end of history" equilibrium. The latter interprets internecine struggles in, for example, many African countries, as representative of "growing pains" in a (colonially delayed) process of state-formation-by-war. The process is perceived to be similar to that which characterized five centuries of European wars, resulting in the Westphalian system. It supposedly culminates—at least in Western Europe—in World War II with reverberations to the present day in peripheral struggles in the Balkans and fringe of the former USSR (Ayoob, 2007).[21] However, Armao's model fails to provide a causal mechanism for the state's deterioration. Why is "decentralization" taking place, and why is it happening now? Why is the process more pronounced in some countries and areas than others? Without answers to these questions, the model has descriptive, but not necessarily a predictive, importance.

2.3.3 *Non-State Armed Actors*

Having discussed the relation between the state and intensified modes of production, it makes sense now to turn to the state's rivals. In this era in which the existence of the strong central national state is being less taken for granted, much attention has been paid to so-called non-state (armed) actors. These may compete and cooperate with the state in providing public goods, such as security. A large body of theoretical work has focused on these actors as being corrosive to state legitimacy.

Armao (2009a) argues, for instance, that as the state finds itself under greater fiscal strain, the incentives to privatize certain functions—including security—mount, creating a competitive market for violence and delegitimizing the state on Weberian grounds. Armao notes, too, that "security forces" are by no means neutral actors, simply enforcing sterile and universally acceptable property rights, but rather function to preserve or change the distribution of resources in society. In that sense, Armao's argument is similar to Foucault's own (Burchell et al., 1991), charging that the complex of state power is a polyvalent constellation of *savoirs* and functions, many of which are performed above or below the level of the state itself. Armao argues that the logic of the state and

[21] As Armao argues, this model would seem to be undermined significantly by the rise of so-called "garden variety" violence, such as that associated with gangs, cartels, mafias, and even Maoist insurgencies in heretofore "stable" and "powerful" states exhibiting modest or even high rates of economic growth. Moreover, if the previous economic development of certain states makes it more difficult for future states to do likewise (as Gerschenkron's (1962) critique of the Rostow (1990 [1960]) development model implies), these difficulties may entail problems of political consolidation in the South.

that of the market, initially united in a marriage of convenience, are destined to collide. The growth of special interests, à la Mancur Olson (2000), seems to be the mechanism at play here. One possible example is that of arms lobbies pressuring politicians, who would otherwise promote a government monopoly on violence, to open up the security market to competition.

2.3.4 *A Note on Epistemology*

Why a specifically Althusserian epistemology in analyzing state-building and economic governance? An Althusserian epistemology—in which knowledge informs the production process, which in turn facilitates the construction of knowledge—rejects a simplistic economic determinism and posits the independent but connected universe of *practices*. In this case, rural–urban trade networks in conflict situations can generate and be informed by social norms at the interpersonal level. Those norms in turn promote continued local production and knowledge-generation in the face of economic predation and generalized incentives to loot, pillage, and steal. They come to determine who is defined as being "Other" and who as "same" in the battle for supporters between those in nominal control of the state, and their challengers. More enigmatically, they will serve to blur that distinction at key moments, allowing firms to operate that would otherwise have fallen prey to rebel groups, and allowing government apparatuses to fund insurgent groups that the state has sworn to eradicate. Knowledge necessary to generate a more intensive value-added process locally is spurred by the new requirements of the production process, which in turn changes the production process in the post-conflict economy. Specifically in the Liberian case discussed in Chapters 3–5, the employment of newly acquired production knowledge facilitated the formation of networks based largely around the value-added process, rather than ethnic identity.

This framework is largely in keeping with the model of social interaction and boundary negotiation as described by Barth (1998 [1969]). It has also been argued that economic incentives are the fundamental shapers of ascriptive or ethnic identity (Patterson, 1975), or decisive factors in determining how salient preexisting ethnic cleavages become (Caselli and Coleman II, 2006). However, at least two classic problems challenge economic determinism in this case, corresponding respectively to the extensification and intensification processes involved in state-building. First, "extensive" collective action taken to seize resources requires a group to have cohered that can be collectively governed by appeals not only to kinship, but also to shared values, distinctive psychological traits (Volkan, 2008), and collective historical memory (Petersen, 2005). Veblen referred to those societal institutions as "ceremonial" structures, and he saw them as always and necessarily being more or less out of touch

with the demands—or "incentives"—of the present (Veblen, 1904). Second, the "intensive" conversion of common resources to private property may require a psychological shift toward the valuation of individual productivity over community integrity (Weber, 2003 [1958]).

The choice of epistemology also allows for the genesis of explanations that do not hew rigidly to one philosophical camp or another (Casti, 1989). I am fond of so-called "rational choice" explanations in certain circumstances, but believe that those circumstances are deeply conditioned and limited by behavioral and normative assumptions. Moreover, Althusserian epistemology, while not usually associated with triangulation or mixed methods approaches in the social sciences, allows at least for the possibility of methodological ecumenism in its conception of "intersecting practices." Here, I have used mathematical models either to guide future empirical research, or to simplify intuitions. I have used quantitative methods when attempting to test hypotheses involving social constructs—tribes in West Africa, for instance—that seem to be fairly universally recognized (if subject to some flux and uncertainty) within a certain context. I have used qualitative methods when trying to get at causal mechanisms (cf. Tilly, 2001) and social constructions of identity.

2.4 A Simple Model of Rural–Urban Predation

Note: A version of this section originally appeared in McDougal (2011).

2.4.1 *A Two-Region, Two-Sector Model*

When do cities become the prey of rural-based insurgency, and when do they go untargeted? This section constructs a simple model of the rural–urban relationship in conflict to theorize when predators will attempt to prey on the cities, versus when they remain in hinterlands. It takes Krugman's (1991a) core-periphery model as a starting point, in which there are just two regions, A and B (corresponding perhaps to "rural" and "urban"), and two sectors. However, the model is modified such that the sectors are not "manufacturing" and "agriculture," but rather production and predation, after Hirshleifer (1991), both of which can occur in either region or both regions. The predators attempt to appropriate the products of producers, and there are coordination costs involved in establishing a predatory group.

2.4.2 *The Formal Model*

Let π be the percentage of the total population that steal, so that $1 - \pi$ will represent the percentage of the total population that produces for a living. Now let S_P represent the share of predatory actors that reside in region A, while

S_N is region A's share of the total population of the country. S_M governs the share of makers residing in region A, such that the population of region A can be described as:

$$S_N = (1 - \pi)S_M + \pi S_P. \tag{2.1}$$

Now let's turn to the concentration of the predators: do they concentrate in region A, in region B, or are they shared in some proportion between the two? First, we include a standard contest success function (CSF) to determine the success of the predators in region A in taking the products produced in region B; it is defined as:

$$CSF = \frac{\pi S_P}{(1 - \pi)(1 - S_M) + \pi S_P}, \tag{2.2}$$

where $\pi(S_P)$ describes the number of predators in region A and $(1 - \pi)(1 - S_M)$ the number of producers in region B. One could conceivably introduce a coefficient of fighting technology, but for simplicity's sake, that is omitted here. The basic idea is that the share of predators relative to targeted producers will be determinative of predatory success. The CSF thus assumes no intergovernmental fiscal transfers. The function is bounded between 0 and unity.

Next, we address the targeted production. Let x be the production of the average producer, t the transportation costs associated with delivering each unit of x from one region to the other, and B the fixed cost of establishing a coordinated predatory operations base in either region. We can now say that all predation will be concentrated completely in region A when the loss of revenue due to transportation costs exceeds the cost (B) of setting up an operation in the other region; in notation:

$$\frac{\pi S_P}{(1 - \pi)(1 - S_M) + \pi S_P} xtS_M < B, \text{ where } t = [0,1]. \tag{2.3}$$

We see first the CSF discussed above. The second term on the left-hand side of the inequality is the value of transportation costs associated with goods from region B that are contested in region A. The premise here is that the quantity of imports to region A will depend not on the total population in the region, but rather only on that portion of the population that produces, and is therefore able to trade for it. On the right-hand side, we have the cost (B) of establishing a base of operations in the other region. Rewriting Equation (2.3) in terms of S_N requires rearranging Equation (2.1), such that:

$$S_P = \frac{S_N - S_M(1 - \pi)}{\pi}. \tag{2.4}$$

We can now substitute (2.4) into (2.3) to obtain:

$$\frac{S_N - S_M(1-\pi)}{(1-\pi)S_M + S_N - S_M(1-\pi)} xtS_M < B. \tag{2.5}$$

Finally we can say that:

$$S_P = 0 \text{ if } S_N < -\frac{\pi txS_M^2 + txS_M^2 + \pi BS_M - \pi B - BS_M}{txS_M - \pi B}, \tag{2.6}$$

$$S_P = 1 \text{ if } S_N > 1 + \frac{\pi txS_M^2 + txS_M^2 + \pi BS_M - \pi B - BS_M}{txS_M - \pi B}, \text{ and}$$

$$S_P = S_N \text{ if } -\frac{\pi txS_M^2 + txS_M^2 + \pi BS_M - \pi B - BS_M}{txS_M - \pi B} < S_N < 1 + \frac{\pi txS_M^2 + txS_M^2 + \pi BS_M - \pi B - BS_M}{txS_M - \pi B}.$$

2.4.3 *Multiple Equilibria*

The model has one very interesting characteristic: it can generate multiple equilibria, though it need not. The reason is that there is a circular causation at work in predation, just as in Krugman's manufacturing economy: as long as there is a healthy supply of production to prey upon, predators congregate where there are other predators because their chances of carrying off large prey are better. The following figures demonstrate a growing number of equilibria at different levels of predation and transportation costs. Figure 2.1 illustrates the model operating with fairly middling levels of predation and high transportation costs (relative to the price of production goods). In keeping with our mapping of the model onto a rural–urban dichotomy, region *A* is presumed to have less productive capacity than region *B*. The line NN represents the relationship between the total population and the number of individuals available for recruitment into predatory activity. The line PP represents the potential for an organized group to form at different levels of population in region *A*. Clearly, there is only one equilibrium here (Point 1): no matter how much predatory activity starts out in region *A*, it will all eventually leave. If we take region *A* to be the hinterland (a realistic assumption, given its minimal share of production at 35 percent), we can predict that predatory activity will target the cities.

In Figure 2.2, the levels of predation rise slightly, and the transportation costs fall. Now we can see that there are two stable equilibria (Points 1 and 3), and one unstable equilibrium (Point 2). The model predicts that, unless the share of predatory activity hosted in the hinterland nears 1, the predators will again prey upon the city. However, if the share of predatory activity approaches 1, the model predicts that they will stay there. The intuition here is that the city

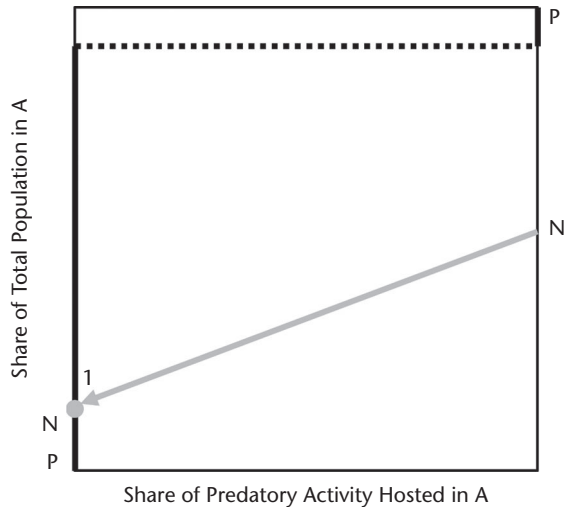

Figure 2.1 Core–periphery model with medium levels of predation and high transportation costs.

$S_M = 0.35, \pi = 0.5, t = 0.45, x = 30, B = 50$.

Source: Adapted from Figure 1 in*Ethnic Groups in Conflict* by Donald L. Horowitz. Used with permission from University of California Press © 2000.

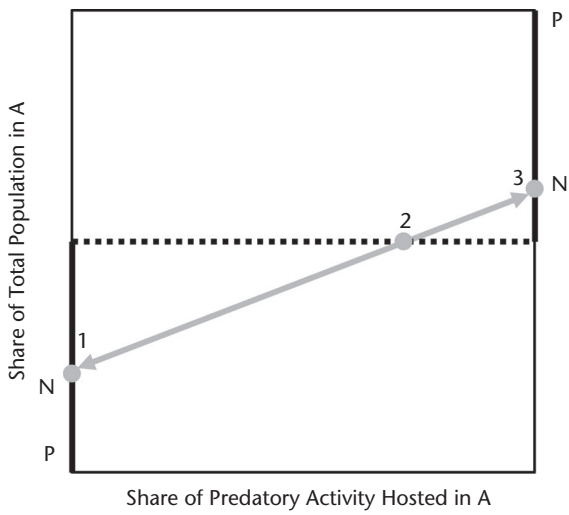

Figure 2.2 Core–periphery model with low levels of predation and high relative transportation costs.

$S_M = 0.35, \pi = 0.6, t = 0.25, x = 30, B = 50$.

starts out with too few native predators to allow for the successful usurpation of goods, and so predators will make do predating the city's goods from their base in the hinterland.

Finally, under conditions of high levels of global predation and low transportation costs in Figure 2.3, we see the possibility for three stable equilibria emerge (points 1, 2, and 3), while two unstable equilibria appear (points 4 and 5). Now, the polarization between the two regions breaks down, and predatory actors flourish in both areas. This outcome (point 2) is in many ways more predictable, and likely gives rise to a neatly delineated combat frontier—centripetal and centrifugal forces are perfectly balanced.

Note that the trend among predators, then, is just the opposite of that described among manufactures in the Krugman model. In that model, lower transportation costs precipitated concentrations of producers in one region or the other. In this model, lower transportation costs allow for the predation "sector" to disperse. In fact, much recent literature on globalization implies that both may be the case.

The model takes as exogenous the share of predation occurring in an economy (π). This may be an implicit acknowledgment that the factors involved in incentivizing predatory violence among rebel actors may be quite diverse. As a preliminary listing, they may include tax policy and military wages (Grossman and Kim, 1995); the presence of a third, "uncontested" sector, such as manufacturing (Caruso, 2008); the ability of potential local

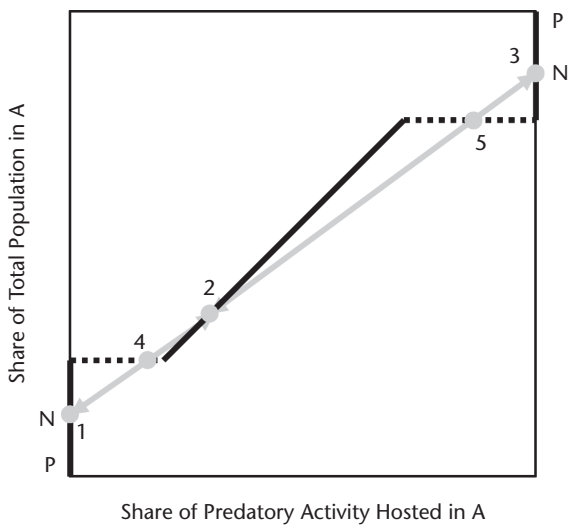

Figure 2.3 Core–periphery model with high levels of predation and low relative transportation costs.
$S_M = 0.35, \pi = 0.75, t = 0.15, x = 30, B = 50.$

recruits to depend upon traditional modes of livelihood (Scott, 1976); whether the funding structure associated with the group is top-down or bottom-up (Lidow, 2010); whether groups are stationary or roving (Olson, 2000); perhaps a more general statement of the former, whether the group relies primarily on financial or social capital during its formative period (Weinstein, 2007); and the amount of debt carried by government (Slantchev, 2014, 2011). One might consider, too, the possibility that the level of predation may itself be influenced by transportation costs.

There are interesting implications of this model for the cases discussed in this book. In the West African cases, higher transportation costs associated with poor infrastructure and radial trade networks (which add monopoly and monopsony costs to goods bought and sold) may have contributed to the drive to prey on cities. This implication may not directly clash with other accounts of West African violence, but it surely adds another layer to the common perception that rebel activity was fueled by high values of certain rural goods, like timber and diamonds (Le Billon, 2001, Ross, 2004a). While that is probably true, the *direction* in which West African rebels were drawn may speak to a rural–urban dynamic at work. In Maoist India, by contrast, transportation infrastructure is comparatively good and trade networks are multipolar (though caste-segmented). These forces may conspire to create a stable combat frontier more or less removed from urban hubs.

What a formal model leaves unanswered, of course, is (1) whether its predictions are borne out empirically and, if so, (2) what form these transportation costs take in the real world. Do they, for example, simply refer to the quality of the infrastructure? To infrastructure type and diversity (e.g. automobile, train, and aviation infrastructure)? To the structure of the city systems and connecting trade infrastructure (mono- versus multipolar)? To the social structure of the rural–urban trade networks? While all of these factors and more may be at work, I will argue that the latter two are key to understanding the marginal directionality of the combat frontier in rural–urban conflicts.

References

Althusser, Louis and Etienne Balibar. 1998. *Reading Capital*. New York: Verso Press.

Amsden, Alice. 2001. *The Rise of the Rest: Challenges to the West from Late-Industrailizing Economies*. Oxford: Oxford University Press.

Amsden, Alice. 2007. *Escape from Empire: The Developing World's Journey through Heaven and Hell*. Cambridge: MIT Press.

Amsden, Alice. 2008 (manuscript). *From Blood Hounds to Bleeding Hearts: The Power Shift in Developing Countries*. Cambridge, MA.

Armao, Fabio. 2009a. "The Market of Violence: From Monopoly to Free Competition." In *Security in the West: Evolution of a Concept*. Milan: Vita e Pensiero.

Armao, Fabio. 2009b. "Political Geographies at the Dawn of the Millennium: Stein Rokkan's "Basic Model" Revisted." Unpublished manuscript.

Arthur, W. Brian. 1989. "Competing Technologies, Increasing Returns, and Lock-in by Historical Events." *Economic Journal*, 99(394): 116–31.

Ayoob, Mohammed. 2007. "State Making, State Breaking, and State Failure." In C. A. Crocker, F. O. Hampson, and P. Aall, *Leashing the Dogs of War: Conflict Management in a Divided World*. Washington, DC: United States Institute of Peace.

Azar, Edward E. 1990. *The Management of Protracted Social Conflict: Theory and Cases*. Brookfield, VT: Gower Pub. Co.

Bacha, Edmar. 1978. "An Interpretation of Unequal Exchange from Prebisch to Emmanuel." *The Journal of Development Economics*, 5(4): 19–30.

Bacon, Francis. 1985 [1620]. *The New Organon and Related Writings*. New York: Macmillan.

Barth, Frederik. 1998 [1969]. *Ethnic Groups and Boundaries*. Chicago: Waveland Press.

Boulding, K. 1962. *Conflict and Defense: A General Theory*. New York: Harper and Brothers.

Burchell, Graham, Colin Gordon, and Peter Miller. 1991. *The Foucault Effect: Studies in Governmentality*. Chicago: University of Chicago Press.

Cardoso, Fernando H. and Enzo Faletto. 1979. *Dependency and Development in Latin America*. Berkeley: University of California Press.

Caruso, Raul. 2011. "International Relative Prices and Civil Wars in Sub-Saharan Africa. Theory and Evidence over the Period 1995–2006." Munich Personal REPEc Archive. https://core.ac.uk/download/pdf/6702688.pdf (accessed October 28, 2016).

Caruso, Raul. 2008. "A Model of Conflict, Appropriation and Production in a Two-Sector Economy." *Paper presented at the AEA/ASSA Conference*. New Orleans.

Caselli, Francesco and Wilbur John Coleman II. 2006. "On the Theory of Ethnic Conflict." London: Center for Economic Performance.

Casti, John L. 1989. *Paradigms Lost: Tackling the Unanswered Mysteries of Modern Science*. New York: Avon Books.

Census of India. 2011. "Provisional Population Totals: Urban Agglomerations and Cities." New Delhi: Government of India, 5.

Chang, Ha-Joon. 2002. *Kicking Away the Ladder: Development Strategy in Historical Perspective*. London: Anthem Press.

Christaller, Walter. 1966 [1933]. *The Central Places in Southern Germany*. Englewood Cliffs, NJ: Prentice-Hall.

Coase, Ronald. 1960. "The Problem of Social Cost." *The Journal of Law and Economics*, 3(1): 1–44.

Cohen, Youssef, Brian R. Brown, and A. F. K. Organski. 1981. "The Paradoxical Nature of State Making: The Violent Creation of Order." *American Political Science Review*, 75(4): 901–10.

Collier, Paul. 2007. *The Bottom Billion: Why the Poorest Countries Are Falling Behind and What Can Be Done About It*. New York: Oxford University Press.

Collier, Paul, V. L. Elliott, Havard Hegre, Anke Hoeffler, Marta Reynal-Querol, and Nicholas Sambanis. 2003. *Breaking the Conflict Trap: Civil War and Development*. Washington, DC: World Bank.

Committee on State Agrarian Relations and Unfinished Task of Land Reforms. 2009. *Draft Report to the Ministry of Rural Development*. New Delhi: Government of India.

Davis, Diane E. 2004. *Discipline and Development: Middle Classes and Prosperity in East Asia and Latin America*. New York: Cambridge University Press.

Davis, Diane E. 2009. "Non-State Armed Actors, New Imagined Communities, and Shifting Patterns of Sovereignty and Insecurity." *Contemporary Security Policy*, 30(2): 221–45.

De Bresson, Chris and Fernand Amesse. 1991. "Networks of Innovators: A Review and Introduction to the Issue." *Research Policy*, 20(5): 363–79.

de Groot, Olaf J. and Anja Shortland. 2010. "Gov-Arrrgh-Nance: Jolly Rogers and Dodgy Rulers " *Economics of Security Working Paper Series*. Berlin: DIW Berlin.

Demsetz, Harold. 1967. "Toward a Theory of Property Rights." *American Economic Review: Papers*, 57(2): 347–58.

Elias, Norbert. 2000 [1994]. *The Civilization Process: Sociogenic and Psychogenic Investigations*. Oxford: Wiley-Blackwell.

Ellickson, Robert C. 1993. "Property in Land." *Yale Law Journal*, 102: 1315–44.

Evans, Hugh Emrys. 1992. "A Virtuous Circle Model of Rural–Urban Development: Evidence from a Kenyan Small Town and Its Hinterland." *The Journal of Development Studies*, 28(4): 640–67.

Evans, Peter B. 1995. *Embedded Autonomy: States and Industrial Transformation*. Princeton: Princeton University Press.

Fafchamps, Marcel. 2001. "Networks, Communities and Markets in Sub-Saharan Africa: Implications for Firm Growth and Investment." *Journal of African Economies*, 10: 109–42.

Ferguson, Neil T., Maren M. Michaelsen, and Topher L. McDougal. 2016. "From Pax Narcótica to Guerra Pública: Explaining Civilian Violence in Mexico's Illicit Drug War." In C. H. Anderton and J. Brauer, *Economic Aspects of Genocide, Mass Killing, and Their Prevention*. New York: Oxford University Press.

Foucault, Michel. 1995 [1975]. *Discipline and Punish*. New York: Vintage Books.

Fry, Douglas P. 2007. *Beyond War: The Human Potential for Peace*. Oxford: Oxford University Press.

Fujita, Masahisa, Paul Krugman, and Anthony J. Venables. 1999. *The Spatial Economy: Cities, Regions, and International Trade*. Cambridge, MA: MIT Press.

Gellner, Ernest. 2006 [1983]. *Nations and Nationalism*. Oxford: Blackwell Publishing.

Gerschenkron, Alexander. 1962. *Economic Backwardness in Historical Perspective: A Book of Essays*. Cambridge, MA: Harvard Belknap Press.

Ghani, Ashraf and Clare Lockhart. 2008. *Fixing Failed States: A Framework for Rebuilding a Fractured World*. New York: Oxford University Press.

Glaeser, Edward. 2012. *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*. New York: Penguin Books.

Grossman, H. I. and Minseong Kim. 1995. "Swords or Plowshares? A Theory of the Security of Claims to Property." *The Journal of Political Economy*, 103(6): 1275–88.

Haggard, Stephan, Andrew MacIntyre, and Lydia Tiede. 2008. "The Rule of Law and Economic Development." *The Annual Review of Political Science*, 11: 205–34.
Heilbrun, James. 1981. *Urban Economics and Public Policy*. New York: St Martin's Press.
Herbst, Jeffrey. 2000. *States and Power in Africa*. Princeton: Princeton University Press.
Hinderlink, Jan and Milan Titus. 2001. "Small Towns and Regional Development: Major Findings and Policy Implications from Comparative Research." *Urban Studies*, 39(3): 379–91.
Hirschman, Albert O. 1981. *Essays in Trespassing: Economics to Politics and Beyond*. New York: Cambridge University Press.
Hirshleifer, Jack. 1991. "The Paradox of Power." *Economics and Politics*, 1(3): 177–200.
Hirshleifer, Jack. 1994. "The Dark Side of the Force." *Economic Inquiry*, 32: 1–10.
Hochschild, Adam. 1999. *King Leopold's Ghost: A Story of Greed, Terror, and Heroism in Colonial Africa*. New York: First Mariner Books.
Horowitz, Morton. 1977. *The Transformation of American Law, 1780–1860*. Cambridge, MA: Harvard University Press.
Hoselitz, B. F. 1955. "Generative and Parasitic Cities." *Economic Development and Cultural Change*, 3: 278–94.
Humphreys, Macartan. 2003. "Economics and Violent Conflict," Cambridge, MA: Harvard Program on Humanitarian Policy and Conflict Research.
Humphreys, Macartan. 2005. "Natural Resources, Conflict, and Conflict Resolution: Uncovering the Mechanisms." *Journal of Conflict Resolution*, 49(4): 508–37.
Irz, Xavier, Lin Lin, Colin Thirtle, and Steve Wiggins. 2001. "Agricultural Productivity Growth and Poverty Alleviation." *Development Policy Review*, 19(4): 449–66.
King James I. 1609. "King James I: Works." New York: W.W. Norton.
Klare, Michael. 2002. *Resource Wars: The New Landscape of Global Conflict*. New York: Henry Holt and Company.
Krugman, Paul. 1991a. *Geography and Trade*. Cambridge, MA: MIT Press.
Krugman, Paul. 1991b. "Increasing Returns and Economic Geography." *Journal of Political Economy*, 99(3), 483–99.
Krugman, Paul. 1998. "Space: The Final Frontier." *The Journal of Economic Perspectives*, 12(2): 161–74.
Lanjouw, Peter and Gershon Feder. 2001. "Rural Non-Farm Activities and Rural Development: From Experience Towards Strategy." Washington, DC: World Bank.
Le Billon, Philippe. 2001. "The Political Ecology of War: Natural Resources and Armed Conflicts." *Political Geography*, 20: 561–84.
Lidow, Nicholai. 2008a. "Feeding Civil War: Markets, Resources, and Rebel Organizations." http://web.stanford.edu/class/polisci440d/Lidow.pdf (accessed November 30, 2016).
Lidow, Nicholai. 2008b. "Lootable Natural Resources and Rebel Organization." Unpublished manuscript.
Lidow, Nicholai. 2010. "Rebel Governance and Civilian Abuse: Comparing Liberia's Rebels Using Satellite Data." *American Political Science Association Conference, 2–5 September*. Washington, DC.
Lo, Andrew. 2004. "The Adaptive Markets Hypothesis: Market Efficiency from an Evolutionary Perspective." *Journal of Portfolio Management*, 30: 15–29.

Lorenz, Konrad. 1974 [1966]. *On Aggression*. New York: Mariner Books.
Lösch, Auguste. 1954 [1944]. *The Economics of Location*. New Haven: Yale University Press.
Markusen, Ann R. 1999. "National Contexts and the Emergence of Second-Tier Cities." In A. R. Markusen, Y.-S. Lee, and S. Digiovanna. *Second-Tier Cities: Rapid Growth Beyond the Metropolis*. Minneapolis: University of Minnesota Press, 65–94.
Marshall, Alfred. 1920 [1890]. *Principles of Economics*. London: Macmillan & Co.
Mazzitelli, Antonio. 2007. "Transnational Organized Crime in West Africa: The Additional Challenge." *International Affairs*, 83(6): 1071–90.
McDougal, Topher L. 2011. "Production and Predation in a Core-Periphery Model: A Note." *Peace Economics, Peace Science and Public Policy*, 17(1).
Mellor, John. 1976. *The New Economics of Growth*. Ithaca, NY: Cornell University Press.
Mildner, Stormy-Annika, Gitta Lauster, and Wiebke Wodni. 2011. "Scarcity and Abundance Revisited: A Literature Review on Natural Resources and Conflict." *International Journal of Conflict and Violence*, 5(1): 155–72.
Momen, Saiful. 2006. "Toward Synergistic Rural–Urban Development: The Experience of the Ruran-Urban Partnership Programme (Rupp) in Nepal." *Working Paper Series on Rural–Urban Interactions and Livelihood Strategies*. International Institute for Environment and Development.
Naím, Moisés. 2006. *Illicit: How Smugglers, Traffickers, and Copycats Are Highjacking the Global Economy*. New York: Anchor Books.
Nurkse, R. 1953. *Problems of Capital Formation in Underdeveloped Countries*. Oxford: Basil Blackwell.
Olson, Mancur. 2000. *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships*. Oxford: Oxford University Press.
Pareto, Vilfredo. 1966 [1902]. "Les Systèmes D'economie Politique." In *Vilfredo Pareto: Sociological Writings*. New York: Praeger, 341.
Patterson, Orlando. 1975. "Context and Choice in Ethnic Allegiance: A Theoretical Framework and Caribbean Case Study." In N. Glazer and D. P. Moynihan, *Ethnicity: Theory and Experience*. Cambridge: Harvard University Press, 305–49.
Petersen, Roger. 2005. "Memory and Cultural Schema: Linking Memory to Political Action." F. Cappolletto, *Memory and the Second World War: An Ethnographic Approach*. Oxford: Berg.
Polanyi, Karl. 2001 [1945]. *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.
Polk, William R. 2008. *Violent Politics: A History of Insurgency, Terrorism, and Guerilla War, from the American Revolution to the Iraq*. New York: Harper Perennial.
Prebisch, Raul. 1950. *The Economic Development of Latin America and Its Principal Problems*. New York: United Nations.
Prebisch, Raul. 1959. "Commercial Policy in the Underdeveloped Countries." *American Economic Review*, 49: 257–69.
Rajagopal, Balakrishnan. 2005. "Limits of Law in Counter-Hegemonic Globalization: The Indian Supreme Court and the Narmada Valley Struggle." In B. de Sousa Santa and C. A. Rodríguez-Garavito, *Law and Globalization from Below: Towards a Cosmopolitan Legality*. Cambridge: Cambridge University Press, 183–217.

Rokkan, Stein. 1999. *State Formation, Nation-Building, and Mass Politics in Europe: The Theory of Stein Rokkan*. Oxford: Oxford University Press.

Romer, Paul M. 1994. "The Origins of Endogenous Growth." *Journal of Economic Perspectives*, 8(1): 3–22.

Ross, Michael. 2002. "Oil, Drugs, and Diamonds: How Do Natural Resources Vary in Their Impact on Civil War?" New York: International Peace Academy.

Ross, Michael. 2004a. "How Do Natural Resources Influence Civil War? Evidence from Thirteen Cases." *International Organization*, 58: 35–67.

Ross, Michael. 2004b. "What Do We Know About Natural Resources and Civil War?"*Journal of Peace Research*, 41(3): 337–56.

Rostow, Walter W. 1990 [1960]. *The Stages of Economic Growth: A Non-Communist Manifesto*. Cambridge: Cambridge University Press.

Sachs, Jeffrey. 2005. *The End of Poverty: Economic Possibilities for Our Time*. New York: Penguin Press.

Sassen, Saskia. 2006. *Territory, Authority, Rights: From Medieval to Global Assemblages*. Princeton: Princeton University Press.

Sassen, Saskia. 2007. *A Sociology of Globalization*. New York: W.W. Norton.

Scheich, Thomas. 2008. "Is Afghanistan a Narco-State?" *New York Times Magazine,* July 27.

Schelling, Thomas. 1963. *The Strategy of Conflict*. New York: Oxford University Press.

Schneider, Friedrich. 2007. "Shadow Economies and Corruption All Over the World: New Estimates for 145 Countries." Manuscript.

Scott, James. 1976. *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. New Haven: Yale University Press.

Slantchev, Branislav L. 2011. *Military Threats: The Costs of Coercion and the Price of Peace*. New York: Cambridge University Press.

Slantchev, Branislav L. 2014. "Borrowed Power: Debt Finance and the Resort to Arms." *American Political Science Review*, 106(4): 787–809.

Snyder, Richard. 2004. *Does Lootable Wealth Breed Disorder? A Political Economy of Extraction Framework*. Notre Dame: Hellen Kellogg Institute for International Studies.

Snyder, Timothy. 2010. *Bloodlands: Europe between Hitler and Stalin*. New York: Basic Books.

Strayer, Joseph. 1970. *On the Medieval Origins of the Modern State*. Princeton: Princeton University Press.

Tacoli, C. (1998). Rural–Urban Interactions: A Guide to the Literature. *Environment and Urbanization,* 10(1): 147–66.

Tilly, Charles. 1985. "War Making and State Making as Organized Crime," In P. B. Evans, D. Rueschemeyer, and T. Skocpol, *Bringing the State Back In*. New York: Cambridge University Press, 169–91.

Tilly, Charles. 1992. *Coercion, Capital, and European States*. Cambridge: Basil Blackwell.

Tilly, Charles. 2001. "Mechanisms in Political Processes." *Annual Review of Political Science*, 4: 21–41.

Vahabi, Mehrdad. 2005. "The Value of Destructive Power." *Crossroads*, 5(3): 24–75.

Veblen, Thorstein. 1904. *The Theory of Business Enterprise*. New York: Charles Scribner's Sons.

Veblen, Thorstein. 1934. *Essays on Our Changing Order*. New York: Viking Press.

Volkan, Vamik D. 2008. "Large-Group Identity, International Relations, and Psychoanalysis." *Deutsche Psychoanalytische Gesellschaft e.V. (DGP) Meeting*. Munich: Gasteig Cultural Center.

Weber, Max. 2003 [1958]. *The Protestant Ethic and the Spirit of Capitalism*. E. Mineola, NY: Dover Publications.

Weber, Max. 2004 [1919]. "Politics as a Vocation." *The Vocation Lectures*. Indianapolis: Hackett Publishing Company.

Weinstein, Jeremy. 2007. *Inside Rebellion: The Politics of Insurgent Violence*. New York: Cambridge University Press.

Part II

Violence Acts on Production Networks

3

How Production Networks Adapted to Civil War in Liberia

3.1 Why Study Liberian Industry?

We begin our empirical investigation of the effects of violence on production networks in the nerve centers of those networks: urban industries. Industrial manufacturing firms in Liberia can shed important light on the structure of production networks in violent conflict. They serve as important nodes in the value-adding process that supply and distribution networks hook into, and their managers therefore have unique opportunities to observe the ways these networks adapt to, and traverse, the shifting combat frontier. In the broader context of this book, this case study then provides qualitative evidence for the claim that rural–urban trade networks in Liberia—and perhaps in unranked societies experiencing rural–urban conflict more broadly—begin to exhibit exaggerated radial patterns, characterized increasingly by important urban hubs and limited importance of second-tier cities. In terms of the formal model discussed in Section 2.4, the trade patterns described here as increasingly radiating from urban industry provide some mechanism by which the rural–urban trade becomes more monopolistic and monopsonistic in nature, effectively raising transportation costs and, thereby, the likelihood that the city will be targeted as economic prey. Moreover, this pattern also begins to hint at an explanation for the observation (made in the introduction) that firms in Monrovia lost relatively few employees relative to the urban population at large during the civil war: as Section 3.3.3 will argue, the firm became a nexus of trader knowledge, allowing the firm (and its employees) to predict rebel attacks and then avoid them.

Moreover, as noted in the introduction, the relationship between urban industry and the rural hinterland may have important implications for the stability of the state. The consolidation of the state and the legitimation of its sovereignty have historically been tied to the development of industry and

rural–urban trade in various ways. While a "weak" or "fragile" state typically also exhibits a weak industrial base, this does not imply that the industrial base itself does not merit attention—perhaps just the opposite, in fact. So while the study of industrial firms in a country whose economy (and civil war) is and was dominated by natural resource and raw materials export may seem tangential for the purposes of identifying the "fuel" for violent groups, for the purposes of this book it is highly topical.

3.1.1 *The Importance of Production Firms*

From its inception, development economics has revered the industrialization process. Economists from Smith to Rostow and from Gerschenkron to Lewis have emphasized the importance of industrial factories as crucibles in which the division of labor is refined, a labor force is developed, and technical knowledge is generated and shared. And though the poorest countries with weak industrial sectors are also the ones that tend to fall prey to the so-called "conflict trap," little research on economies in conflict has explored how production firms operate.

Much recent research has focused on those types of "contested sectors" like the extractive and drug trafficking industries that can drive and prolong violent conflict (Fearon, 2005, Ferguson et al., 2016, Humphreys, 2005, Karl, 1997, Le Billon, 2001, Robles et al., 2013, Ross, 2004a, 2002, 2004b, Snyder, 2004, Snyder and Bhavnani, 2005, Snyder and Duran-Martinez, 2009). Furthermore, research on the private sector in conflict has emphasized the vulnerability of capital concentrations and the trade routes that link them—Collier (1999), for instance, asserts that capital- and trade-intensive sectors (notably including industrial production and manufacturing) are "war-vulnerable," while sectors like agriculture are less so. Additionally, a growing body of conflict research seeks to understand the role of private sector "leaders" (Conroy and McDougal, 2014) and "entrepreneurs" (Boudreaux and Tobias, 2009, Desai, 2009, Desai et al., 2009, McCoskey, 2009, Rettberg, 2009) in conflict—the latter being a term used alternately for those who innovate in the private sector and those who simply start small, replicative businesses. Regardless of the definition adopted, the "entrepreneurship and conflict" literature connotes economic activity carried out by atomistic individuals, and not by larger coordinated firms. More recently, the World Bank has taken an interest in how the private sector adapts to, and copes with, violent conflict (Goldberg et al., 2014), given the adverse effects that crime and violence may have on the productive enterprises generally (World Bank, 2011).[1]

[1] There is a sprawling and varied literature estimating the economic costs of violent conflict and benefits of peace (Abadie and Gardeazabal, 2003, Ajzenman et al., 2014, Ali, 2011, Brauer and

Many production firms survive and even thrive in the face of violent conflict. The fact that the survivors are, for the most part, producers of inelastic or inferior goods that are expensive to import is not surprising. But the fact that they continue to operate at all may be surprising, given their high capital- and labor-intensiveness. Using the case of Monrovia, Liberia during that country's protracted civil war, I will make a case in this chapter that production firms that survive or thrive in violent conflict do so by performing a delicate balancing act between concentrating capital and labor to produce efficiently in ephemeral pockets of relative calm, and dispersing them spatially and temporally when the combat frontier approaches one of the production chain components. Such adaptability relies upon rapidly gathering information (via production networks) and processing it (at the place of production).

There are good theoretical reasons to seek to understand the adaptations of production firms in the world's poorest and most conflict-affected countries. Caruso's (2008) model of a two-sector economy at war suggests that investment in an "uncontested sector" (i.e. one whose value added is not wholly up for grabs in the struggle) can increase total welfare. Industrial manufacturing is a good candidate for a real-world uncontested sector because its value-adding mechanisms are sophisticated and primarily knowledge-based (as opposed to the resource extraction industries, for instance, whose value is largely not added, but found). This distinction means that a production firm's entire coordinated production network must be functional in order to generate profit for would-be "taxers." Manufacturing shares the trait of sophisticated, knowledge-intensive value-adding processes with the service sector. However, the manufacturing sector has the potential to buy from, as well as sell to, rural populations. By sourcing its raw materials locally from rural areas, it can link industrial capital concentrations with hinterlands in a mutually beneficial way. By contrast, the service sector in less developed countries typically only sells to, not buys from, rural areas.

The special place occupied by the manufacturing sector—neither easily appropriated, nor necessarily beneficial to, a narrow urban elite—may in turn place serious limitations on the levels of destructiveness of any profit-maximizing rebel group wishing to capture it. There are at least a couple of possible causal mechanisms that might account for this: the first top-down, and the second bottom-up. First, the potential for taxation (or extortion) by a rebel group may incent rebel leaders to preserve the value-adding processes intact, which become in effect the goose that lays the golden eggs. In the bottom-up scenario, the often-rural support base of the rebel group may erode

Dunne, 2010, Brück et al., 2012, CRSS, 2010, de Groot, 2009, Frontier Economics, 2010, Hess, 2003, Kolbe et al., 2012, Lindgren, 2005, McDougal et al., 2015a, McDougal et al., 2015b, Ra and Singh, 2005, Robles, Magloni, and Calderón, 2013, Skaperdas et al., 2009).

with diminishing industrial demand for their produce. This reasoning implies the hypothesis that the more an economy's product is generated through industrial manufacturing, the less destructive conflict should be. Given the fact that the recent occurrence of a civil war raises the risk of a country descending into widespread violence within a decade from just 9 percent to 40 percent (Collier, 2007), the adaptations of the private sector during one conflict may bear on the risk and extent of violence the next time around.

In addition to these considerations, though, production firms serve as windows onto rural–urban trade patterns. The evidence presented here and in the following chapter comes to us from the perspective of production firm managers, and not traders who actually cross the rural–urban interface. Such a perspective is defensible, however, both on the grounds of triangulation and convenience. In the first instance, managers in the nerve centers of production networks were well-placed to understand their distribution networks: each dealt with tens or hundreds of traders on an ongoing basis. This information can be compared and contrasted with that presented in later chapters. In the second instance, due to their central place in production networks, there are fewer production managers than traders, and they tend to enjoy greater job security—implying that current managers are more likely to still be found with the same company for which they worked during the war.

The remainder of this chapter is structured as follows. In the remainder of the introduction, I give a brief justification for the production chain dispersal argument from the point of view of previous literature. In Section 3.2, I briefly describe my research design for the empirical section. In Section 3.3, the largest section, I describe how these dispersal strategies manifested themselves in the case of firms operating in Monrovia, Liberia, during that country's civil war, giving examples from each. I conclude the chapter in Section 3.4 with some broad takeaways and links to following chapters.

3.1.2 *What We Can Glean from Past Studies*

This section contributes to a burgeoning body of work on economies in conflict (Berdal and Malone, 2000, Pugh and Cooper, 2004). However, there are fewer precedents to draw in terms of studies of firms in war specifically (one notable recent exception being Goldberg, Kim, and Ariano, 2014). Given the lacuna in the conflict literature on organizations in war, it is helpful to begin filling the gap with existing organizational theory literature, which emphasizes the causal link between environment and organizational structure. (In fact, the topic of firms in war may be viewed as a subset of the wider, and better studied, category of organizational adaptation to external change.) Lawrence and Lorsch (1969) posited that vertical organizations are better suited to predictable environmental influences, whilst horizontal ones are

better suited to the unpredictable. Such a theory implies that a wartime business would tend to "flatten" or outsource its hierarchy. Similarly, Hiatt (2012) argues that businesses facing unpredictable violence in Colombia tended to do worse when they made long-term business plans. March (1991) creates a model in which an organization's adaptability to "turbulence" is a function of the likelihood of turbulence and the rate of acquisition of new information on the environment,[2] suggesting that wartime businesses would be willing to pay premiums for information on emerging risks. In an argument that also touches on organizational learning, Amsden (2001) asserts that a key component to late-industrializing corporate success is transforming foreign technology into organizational know-how. This raises the question of whether difficulties in sourcing more foreign technology may result in attempts to substitute investments in human capital aimed at improving in-house repair and maintenance services—and a possible ironic effect that damage to physical capital may catalyze this organizational learning.

On the subject of Supply Chain Management (SCM), the theory of "dispersal economies" (Li and Polenske, 2004) states that distant target markets justify more decentralized distribution networks, and that businesses choose to minimize SCM costs in balancing transportation costs against inventory costs. Therefore, as transportation costs rise, businesses shift their emphasis to geographically dispersed inventory locations. In war, large shipments may be differentially targeted at military checkpoints (especially at the combat frontier), and so militate against large concentrations of stock en route or in situ. In effect, we may infer that as a combat frontier in essence renders distribution and sourcing points behind it farther away, distribution and sourcing networks will decentralize.

The intuition behind this reasoning can be glimpsed in a Hotelling location model (so named for the economist who developed it (Hotelling, 1929). Figure 3.1 illustrates the economic "catchment areas" accruing respectively to a town and a city competing for the sale of a similar product. The vertical axis denotes the price of the good, presumed to be lower in the city, which benefits from economies of scale and agglomeration. The slope of the lines emanating from the town and the city then represent the price of the good as a linear function of distance from the place of production—transportation costs, in other words. If city manufacturers are able to lower the cost of production (say, from P_0 to P_1, as in Figure 3.1, then they will capture a greater catchment area.

However, predation effectively increases transportation costs. In the Hotelling model, that implies steeper slopes for price lines. As shown in Figure 3.2,

[2] Though March specifically models the rate of turnover, it can be argued that his model more plausibly tests the rate of information gathering.

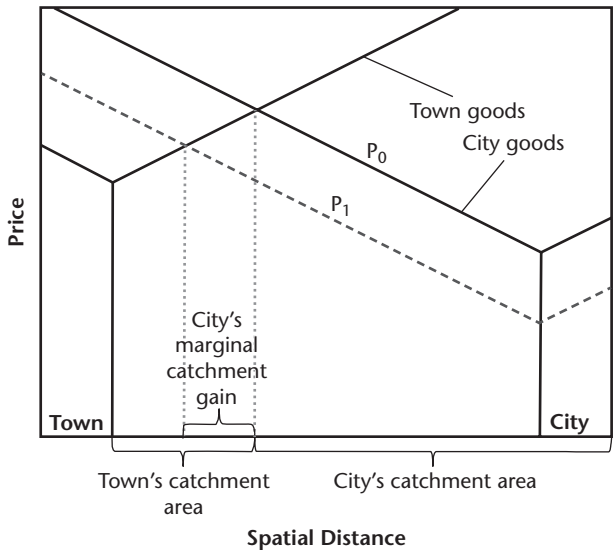

Figure 3.1 Hotelling location model depicting economic catchment areas for a city and a town.

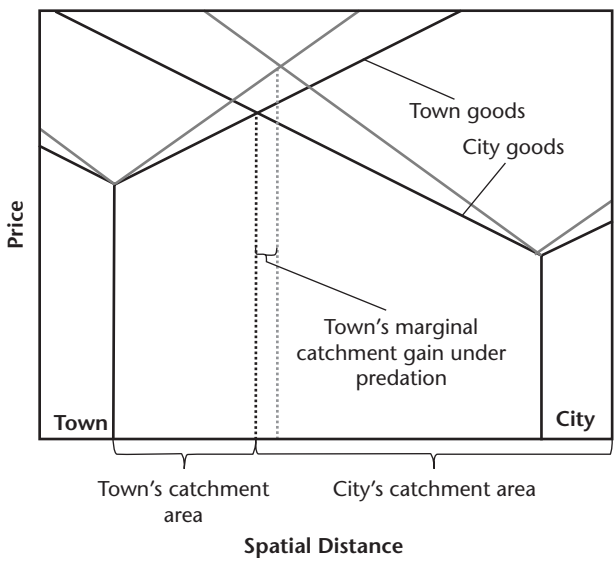

Figure 3.2 Hotelling location model depicting economic catchment areas for a city and a town under predation.

steeper radiating price lines move the boundary between catchment areas towards the geographic midpoint between the two urban areas. Such a move will grow the customer base of the underdog production center (the town in this case), shielding it from competition. Such a logic may apply equally well in the case where the city's product is not in fact manufactured there, but rather simply imported from abroad, as is often the case in Monrovia and Freetown.

3.2 Qualitative Research of Liberian Firms

3.2.1 *The Liberian Case*

Liberia serves as a compelling case study for five primary reasons. First, the Liberian Civil War lasted for 14 years—long enough for businesses to consider the war environment as a status quo, rather than a brief, exceptional period. This consideration is particularly important given the increasing frequency in modern times of low-burning, long-lasting civil wars. From December 1989, when a former government official-turned-rebel named Charles Taylor crossed the Ivorian border at the head of an army, to October 2003, when the United Nations established its Mission in Liberia (UNMIL), Liberia was engulfed in a complex series of conflicts collectively termed the Liberian Civil War. The war was characterized by a string of competing factions battling from rural bases to lay siege repeatedly to the political and economic capital, Monrovia.

The second reason for choosing Liberia is that the war was intense enough to do major damage to the economy as a whole and consequently present serious, sustained challenges to the survival of local firms. The war was ultimately responsible for the deaths of anywhere from 5 to 10 percent of the total national population of over 3 million, as well as the forced displacement—in many cases, multiple times over—of approximately one-third of Liberians (or roughly 1 million people), 700,000 of whom fled across an international border to become refugees (National Transitional Government of Liberia, 2004). Staggering as these numbers are, the true toll of the war also includes one of the most spectacularly precipitous declines in national prosperity experienced by any nation in modern history (Sachs, personal communication, January 19, 2008), greatly weakened state capacity, and war-induced morbidity.

Faced with continuing instability over 14 years, foreign direct investment into Liberia largely dried up during the war. Inflation was estimated at 15 percent in 2003 and, though it has subsided, continues to erode the purchasing power of most Liberians. As the war drew to a close in 2003, 76 percent of the population lived on less than US$1 per day, and 52 percent lived on less than 50 cents (Government of Liberia, 2004). Through war and

mismanagement, the Liberian per capita Gross Domestic Product plummeted from US$478 in 1988 to US$65 in 1995 (in current dollars), and its GDP similarly fell from $1.038 billion in 1988 to $132 million in 1994 (World Bank, 2016). Core foreign exchange-earning sectors such as rubber and iron ore came to a virtual standstill. In 2007, official unemployment stood at an astounding 85 percent (Ministry of Health and Social Welfare, 2007) (though this number is likely quite inflated due to employment being defined solely in relation to the formal-sector; it is contradicted by World Bank data). Of the 175 countries where the Human Development Index was calculated in 1999, Liberia ranked 174; only Sierra Leone was lower (United Nations Development Programme, 2000)—a country which had experienced a similar and related set of conflicts, but had simply started off poorer than Liberia.

That is not the whole story, though. Despite the carnage and the abysmal macroeconomic indicators, certain industries and certain businesses managed to cope, and even to thrive—even in the capital-intensive and trade-intensive sectors defined by Collier (1999) as "war-vulnerable." These industries predictably tended to produce goods exhibiting low elasticities of demand—staples, necessities, and perhaps a few inferior goods (e.g. candles to replace the electricity that went down in the First Liberian Was, as well as, yes, beer and alcoholic spirits). Furthermore, the war was not a universal conflagration burning in all parts of Liberia for 14 straight years. Rather, it was a constellation of sporadic violent eruptions, sometimes intensifying, sometimes subsiding. The combat frontier, often very blurry, shifted quickly and sometimes without warning. But it also opened up pockets of relative calm (and, for a business, opportunity) behind it, even as it brought violence to new areas.

The third reason for choosing to study Liberian firms is that peace has been definitively reestablished, the democratic process successfully relaunched, and an extensive international reconstruction effort begun. With the arrival of UNMIL in October 2003, all violence came abruptly to an end, and the UN continued to spend US$750 million annually to support the mission when much of the fieldwork for this study was done (Jeffrey Sachs, 2008). This situation allows not only for safe investigation, but also clear identification of instances where business adaptations to wartime are retained for non-conflict-related reasons.

Fourth, the termination of hostilities was recent enough that many of the firm managers I interviewed had been employed by the same firms during a substantial part of the war. This is particularly true of the so-called Second Liberian Civil War, between Charles Taylor's government and rebel groups LURD and MODEL from 1999 to 2003.

Finally, Monrovia during the war was a paradigmatic example of a capital city besieged. It is home to a preponderant proportion of the country's

industry (and one-third of its population), which experienced the approach of a combat frontier in 1990–92 (led by Charles Taylor's NPFL and Prince Johnson's splinter faction, INPFL), and thrice again in 2001–03 with the advance on the city of LURD from the north and MODEL from the southeast.

3.2.2 *Methods*

I employed semi-structured interviews with firm managers to obtain information on business operations before, during and after the wars. I chose this qualitative method for four reasons. First, many business records detailing employment levels, wage levels, etc. were destroyed during the war, and those that were not were difficult to gain access to. Second, no official statistics were gathered on wartime business operations. Third, even if statistics had been gathered, the situation changed so rapidly that such snapshots would not be able to convey the dynamic process of adaption through any sort of "comparative statics" analysis. By contrast, an interview can tell a story in dynamic "real-time." Fourth, interviews with key decision-makers in firms may shed light on the grounds on which certain decisions were made, thus hinting at the beginnings of causal connections and hopefully helping to generate theory.

I studied 11 Liberian production firms, gathering anywhere from one to three manager interviews at each. Because of the inherent difficulty in finding employees from firms that had not survived the war, firms were necessarily limited (with the exception of Parker Paints) to those that has survived. Therefore, the dependent variable was not taken to be "survival," but rather supply-chain structure. The independent variable was the geographic location of the combat frontier in relation to the firm, its suppliers, and its markets.

Potential firms were identified by (1) preliminary examination of a detailed map of Monrovia landmarks compiled by the Humanitarian Information Centre of Liberia, (2) street-by-street driving tour of major business concentrations, and (3) snowball information-gathering during the interview process. Selected firms had to (1) be accessible (at least one manager had to be willing to talk about wartime operations), (2) focus on domestic-serving production, and (3) have been founded before the commencement of (and probably continued operating during) the Second War (1999–2003). Firms were also chosen so as to maximize variation in ownership (local versus foreign) and location. Firm selection was stratified by location, where three sections of Greater Monrovia were identified:

1. *Continuously held central Monrovia*. While fighting did come to certain parts of central peninsular Monrovia in the First War (1989–1992), and again briefly in April 1996, and although the downtown was shelled during the Second War (1999–2003), central Monrovia never fell to

non-government forces (though the government/non-government distinction was blurred at some points during the war).

2. *Northern Monrovia*. This area, which includes the large industrial concentration on Bushrod Island and the Freeport of Monrovia (also on Bushrod Island), is situated across the mouth of the Mesurado River from central Monrovia. Because of its proximity to the city, it has repeatedly been targeted as the main route to the capital by rebel armies, and so all of the long-standing businesses there have had to contend with operating under rebel control.
3. *Eastern Monrovia*. This area consists of the exurban townships scattered around the eastern portion of the lagoon, from Red Light in the southeast to Gardnersville in the northeast. These areas did not come under direct rebel control during the Second War, but government control was eroded here and the GoL was unable to prevent widespread looting and breakdown of civil order.

Such variation was meant to distinguish the strategies employed by three classes of firms: those sporadically under rebel control, those in an administrative no-man's-land, and those continuously under government control. In addition to varying location (and hence exposure to violence), firms were also selected so as to maximize variation in ownership (local versus foreign) and supply-chain structure (i.e. locally versus internationally supplied) for reasons discussed in Chapter 4. Table 3.1 lists the firms where interviews were performed, as well as their location, supply-chain structure, and ownership.

Table 3.1 Production firms selected for study

No.	Firm	Description	Region[a]	Local sourcing[b]	Local ownership[c]
1	RITCO	Spirits manufacturer	1	0	0
2	NICOM	Spirits manufacturer	3	0	1
3	African Tile	Cement products	2	1	1
4	Salaloe	Cement products	3	1	1
5	USTC	Soft drink bottler	2	0	0
6	Monrovia Breweries	Brewery	1	0	0
7	Sierra Leone Breweries	Brewery	2[d]	0	0
8	International Aluminium Factory	Metal products maker	2	0	0
9	LISWINCO	Wood products maker	1	1	1
10	AfriCorp	Candle and toilet paper production	1	0	0
11	Parker Paints	Paint products	2	0	1
12	CEMENCO	Cement manufacturer	1	0	0

[a] 1 = Sporadic rebel capture, 2 = No-man's-land, 3 = Constant government control.
[b] 0 = Mostly imported inputs, 1 = Mostly locally-sourced inputs.
[c] 0 = Foreign ownership, 1 = Local ownership.
[d] Based on the categories of geographic types enumerated above.

3.3 Dispersal Strategies in Production Networks

Intuitively, firms dealing with supply, production, and distribution attempt to balance the output of the three and thereby minimize wastage. This intuition is more formally presented in Appendix A: Supply-Chain Management in a Predatory Environment. In predatory environments, firms can balance the equation either by dispersing their inputs to avoid capture, investing in security measures to prevent capture, or simply raising the inputs involved in a certain process to replace the losses associated with capture. Appendix A presents a constrained maximization model in which these hunches produce a few intuitively appreciable predictions of adaptations to predation. First, it predicts that investment in supply and distribution chain dispersal will rise rapidly at the onset of predation with diminishing returns later. Second, it predicts that the rise will take place in the supply chain when the inputs are valuable, and greatest in the distribution chain when the production process adds most of the value.

These intuitions are borne out by reports from firm managers working in Monrovia during the civil war. First, from the constrained maximization model, we guess that the degree of dispersal will be influenced by the levels of predation. Second, dispersal of economic activity in production network components can take different forms depending on which production network component was affected: specifically, supply and distribution channels tended to disperse spatially and temporally, while production centers, because of their fixed capital requirements, could generally only employ temporal dispersal. Finally, consistent with March's (1991) theory of information throughput in turbulent times, production networks were employed as information-gathering antennae, informing the shape and extent of network dispersal.

3.3.1 *Determinants of Predation Levels*

The degree of predation in any component of the production process seems to have depended on three primary factors: (1) proximity to the combat frontier, (2) rebel (and citizen) conduct, and (3) the value of the targeted good.

PROXIMITY TO THE COMBAT FRONTIER

Proximity to the combat frontier was sometimes difficult for firms to gauge, both because the combat frontier was blurry at best, and because it moved very rapidly and often in unexpected ways. One manager of RITCO, a firm located on Bushrod Island that fell repeatedly under LURD control during the Second War, described the inability to make contingency plans under such uncertain circumstances:

> You see that war actually becomes something like, um, overnight, they on you [*sic*], so there is nothing you could do. The only thing you could do is you have to

> find a means of way [*sic*] to hide yourself in order to protect your life. Everybody say [*sic*] to hell with business, only the life [matters]. When you can't make anything, you start from there. You don't think about distributing or what, or production value left in the plant. You don't think about that.

REBEL AND CIVILIAN BEHAVIOR

The predatory tendencies of rebel soldiers varied dramatically from the First War (1989–96) to the Second (1999–2003), with clear consequences for the private sector. Lidow (2016) argues that the degree of predation among soldiers is partly a function of top-down versus bottom-up financing mechanisms for militia units, as well as the amount of socialization that goes into their recruiting and training. That is, when militia commanders have control of the purse strings, they can influence more directly the type of behavior their subordinates exhibit. This explanation seems to resonate with business managers, who consistently point out that NPFL and INPFL rebel commanders during the First War—largely funded in a top-down from abroad—had much more influence over their men than LURD and MODEL commanders in the Second War, who were more often funded in bottom-up fashion through looting, diamond smuggling, and illicit sales of timber.

Furthermore, predation was associated not just with soldiers of the various warring factions, but also with the civilian population, which participated in looting in areas and times when rule of law was weak. For instance, despite the fact that the Parker Paints production facility was located in Paynesville, an area hit by the NPFL during the First War, one manager remarked about the damage looters did to his factory at that time, "to be honest, we lost most of our capital because of civilians." A manager at USTC explained that "[A]nybody could loot. Any civilian who was brave enough could loot. Any soldier who had a little gun could go looting, if the property was not protected." Well-disciplined rebel soldiers might sometimes even restrain the excesses of civilian looters. Speaking of Prince Johnson, the rebel INFPL commander who took over Bushrod Island and the MB facility located there during the First War, one MB manager remarked:

> He was really strong, he was a strong commander, so he had them under control. Disciplined them when they went wrong, so they were afraid of him. They were afraid to harass us civilians and all of that. So the island was better compared to [Government-controlled] central Monrovia and the other side.

VALUE OF THE TARGETED GOOD

Valuable goods were obviously more coveted than less valuable, but value depended ultimately on the prices the products would fetch on the local market. Therefore, finished products tended to be targeted by predators more than intermediary ones, which in turn were more frequently targeted

than raw materials. In fact, raw materials were mostly left untouched by looters (though of course some extremely valuable raw materials, such as gold, diamonds, and timber continued to be targeted for their value on the international market). A manager of Parker Paints related that his raw materials were actually jeopardized by the value of their own containers:

> When I got back (amazing!), we had lost close to half a million [US] dollars worth of raw materials, you know why? Truly, truly amazing. For the containers! When I got back, the factory was 8 inches floating in pigments, alkaline residues, whatever. Truly amazing. We lost close to half a million dollars. But for the containers, if you believe it. They wanted the empty drums, the plastic drums, so they just emptied US$250 worth of raw materials on the ground so they could sell the drum for $2.

Similarly, the General Manager of CEMENCO remarked:

> What . . . helped is that there was the raw material that nobody could do anything with. Okay, but the other things, generators, the vehicles, office equipment, and what have you, nothing can plan to protect.

3.3.2 *A Typology of Dispersal Strategies and Their Competitors*

Liberian firm managers described four basic strategies for dealing with increased predation: (1) dispersal (and/or outsourcing), (2) increased throughput, (3) investment in strengthened property rights, and (4) accommodation. Which strategy was chosen depended upon the tendency of predatory groups, whether military of civilian, to loot; and the firm's willingness to expend financial versus social capital (see Table 3.2). Importantly, dispersal strategies were preferentially employed when firms did not have strong financial resources on which to draw but faced situations where groups had a strong tendency to loot—a situation unfortunately common in civil wars in the Global South.

INCREASED MATERIALS THROUGHPUT

This strategy (corresponding to increasing (*s,p,d*) in Appendix A: Supply-Chain Management in a Predatory Environment, Equation (A.10) simply implies investing more resources in the supply, production, or distribution process in the hopes of meeting previous output standards. This strategy was most often employed in extraordinary cases or crises where the predation was erratic, rare, or unpredictable, making more systematic risk-offsetting strategies too costly to implement on a permanent basis. It most often took the forms of (1) more input goods purchased, (2) greater investment in fixed capital, or (3) more hired staff.

Table 3.2 Survival strategies of production firms in war, including dispersal

		Rebel/civilian tendency toward looting	
		Low	High
Resources required of the firm predated	Financial capital	Increased materials throughput	Property rights investments
	Non-financial capital[a]	Accommodation	Spatial and temporal dispersal

[a] Typically social or physical capital.

Examples of the first form include NICOM's and Monrovia Brewery's repurchase of looted inputs. Another example is the common practice of overstocking production inputs to be able to produce in the event of disrupted supply chains. Overstocking came with its own risks, however, as LISWINCO found out when a stray rocket struck its wood stockpile and the lot went up in smoke. Moreover, investment in fixed capital was most often associated with accommodating oversized supply stockpiles. CEMENCO, for instance, invested in an expanded clinker warehouse.

Increased investment in human resources was often required when damaged equipment forced businesses to adopt more low-tech, manpower-intensive contingencies. An example of this was found at NICOM and RITCO, both of which engineered backup manual production equipment, such as capping machines. One of RITCO's managers explained:

> When the machines are broken down, what do we do? We go to manual! When the machine it is pumping and it broke down, what do I do? I have to go to manual by using a cup. If it is sealing and it cannot seal then I have to look for the hand machine, hand sealing. So all the time I get the manuals and everything waiting, because not every day is better day. You prepare you in times of war.

Consequently, both firms acquired the in-house capacity to fix most technical problems associated with manual machines and generators. They integrated machinists and technical personnel into their usual production staff. Whilst the larger, foreign-owned firms such as USTC, CEMENCO, and MB already had large repair shops, they grew larger still.

Finally, increased investment in human resources was required simply by high turnover rates among employees. The latter were caused either by deaths among staff or, more commonly, by their physical displacement. A manager of RITCO explained why he was forced to spend so much time and money on retraining:

> We . . . suffered casualties of about six or five employees . . . They went to central [Monrovia] for food and they were caught up . . . in the firing. We compensate[d]

> their family . . . nothing we can do . . . [We hired replacements r]ight away. You know, industry is like a machine. When a part [is] broken, you have to buy it and put it back before you can continue.

Likewise, a manager at USTC recounted his frustrations with high turnover:

> [Turnover]'s still high. During the war a lot of our staff had to leave, a lot of them to the United States on various resettlement programs, immigrant programs are still running . . . We did lose a lot of key staff. And we continue to experience the differences since 2003. You find yourself having to retrain people over and over again . . . It gets frustrating working in this environment.

PROPERTY RIGHTS INVESTMENTS

This strategy was simply to reinforce one's own property rights through sheer force or cunning.[3] An example of the first is USTC, which hired a large security force to guard its compound. The manager of the Aluminum Factory showed cunning when he safeguarded production machinery by disabling the factory's forklifts, which would have been required to load the large machines onto trucks. A manager of Parker Paints resorted to camouflage:

> You know, one of the things we did, we made the factory look as if nothing was there. You know if you walk there, we put as much junk as possible, so that nobody would assume that there was anything there . . . Equipment-wise I lost 2 compressors and a couple of motors. But I have all my mills, all my cans, equipment, my welders . . . we mothballed everything, too, so . . . we make sure that they aren't hit by rain. Every now and again we fire them up. So I mean we're not too far gone to get started again. It won't take that much.

ACCOMMODATION WITH PREDATORY GROUPS

It was common for businesses with large compounds to invite government or rebel contingents to encamp there, using their buildings as barracks. This quartering tactic reduced the risk of predation from other groups and citizens. A manager of Parker Paints explained that:

> You had to be flexible. When ECOMOG was here, you still had rampant crime. We would allow some ECOMOG soldiers who were stationed in the area to use it [the paint factory compound] as a sub-base, so they were there for a while. You know you just had to be creative.

[3] Private investment in property rights most easily corresponds to (*G, H, I*) in the model presented in Appendix A: Supply-Chain Management in a Predatory Environment, since it is in competition with rebel investments in predation.

MB hosted Prince Johnson's troops to good effect during the First War, as a manager there describes:

> [We] never had a serious problem with them . . . There was minor problems with the employees, or maybe sometimes they coming in to get free beer or all of that, but other than that . . . he [Prince Johnson] had them under control, you know.

However, the protection earned might be withdrawn if and when the guest contingent was forced to evacuate, as LURD forces did from the CEMENCO compound. As a CEMENCO manager explained:

> Yeah, they lived in the yard, so for the time they were there, they were taking care, but when they were about to pull out, they took away everything they could put their hands on: doors, windows, you just name it, everything.

It is interesting to note that the accommodation strategy was resorted to most often when the combat frontier had passed over the production center, bringing it under rebel control. As Olson (2000) has noted, once the bandits become "stationary" (as opposed to roving to pick off supply and distribution shipments), they tend also to become less predatory—thus providing a possible causal connection between the location of the combat frontier in relation to the production network, and the tendency of a group to loot.

DISPERSAL STRATEGIES

The war environment dispersed economic activity in three primary ways: (1) investment-wise, (2) spatially, and (3) temporally.

Foreign direct investment tended to flee the country in the war years, of course, but much domestic investment, especially that of local entrepreneurs, sensibly minimized risk exposure through portfolio diversification—a move which may have deprived certain industries of "critical mass" in capital formation. A manager at Parker Paints described branching out into other industries in the years leading up to and during the war:

> So I diversified, out of the paint, into other things which I thought, not a big investment, you still make money, and exposure isn't that great basically. I do [engine retooling and] other things. I'm into mining also—small-scale gold and diamond mining. So basically you diversified into businesses where, one, you didn't have too much government interference, and [two,] you didn't have too much exposure.

Dispersal at the firm level can be classified as either temporal or spatial. To generalize, firms in Liberia spatially and temporally dispersed their supply and distribution networks, and only temporally dispersed their production (because production machinery was largely stationary).

Temporal dispersal diseconomies in the workplace stemmed primarily from the stop-and-go nature of all economic activity during the war. During the First War, for instance, USTC's production was characterized by "very limited operations: off and on." However, temporal dispersal in production not only served to keep production staff safe in times of intensified fighting, but also protected the value added during the production process. By timing the production process exactly so that the finished products could immediately be offloaded to distributors, firms could avoid being targeted for what they produced. Thus the production process itself served as the fulcrum of the entire supply chain, regulating when and how much value was embodied in products. The fittest survivors in that climate were industries that could take "worthless" raw materials and rapidly produce finished products whenever distributors became available to take the processed goods off of their hands. One of NICOM's managers noted that:

> As we produce, the buyers come . . . , so we don't keep too much of stock. And it so happened within that time [during the war] we did not have too much finished stock, although we had some stock in process that we got caught up with [one time], but the actual finished stock wasn't much.

Companies were thus forced to forego semi-processed materials (often produced in foreign-owned factories in the formal sector) for less-predated raw materials (sourced by local businesspeople in the informal sector). A manager at LISWINCO explained:

> Until that time [1990, when the NPFL/INPFL closed in on Monrovia], we used to get our wood directly from the [foreign-owned] saw mills. After 1990, people [informal, petty loggers] start using power saws, going to the bush to get the wood, so we would take wood from them.

Spatial dispersal figured prominently in supply and distribution routes that crossed the combat frontier, and which were thus particularly vulnerable to predation (depending on the value of the good). These networks tended to splinter into reticulated webs of small routes where poaching and "taxation" could be minimized through networks of trust.[4] Dispersed supply and distribution networks required an army of traders with intimate knowledge of geography and the local inhabitants. One manager remarked that "[a] lot of small-scale trading [took place]. People who had never been involved in business before became traders." They thus required more investments in human resources to create reticulated networks and coordinate their deliveries. For instance, when NICOM began to source more product inputs locally,

[4] This family of strategies corresponds to increasing the value of (*G, H, I*) in the model presented in Appendix A: Supply-Chain Management in a Predatory Environment.

its purchasing manager increased the purchasing department's staff from 12 to 16, in order to accommodate the larger number of small shipments it contracted.

Supply/distribution dispersal often implied outsourcing, as well. The small traders that entered the transportation market were generally not directly employed by firms, but rather informal. Firms typically outsourced jobs that were risky, required little skill, and required knowledge of the local social geography. The prototypical examples were distribution and sourcing operations in rural areas. This often involved co-ethnic traders, as described later in Chapter 5. An MB manager explained: "Nobody could venture out there. No business would do that. It was very risky. So we had the people come in to buy." A RITCO manager expanded:

> [A]s a businessman, I will not take a convoy to go across [the combat frontier to distribute]. Immediately it does and they're caught, full of mead. First thing [the rebels will assume] is [that] I have a different intention, have come to spy their arsenals, or worse . . . to leak information. So I will be either executed, or you know anything they are wanting to do they will do because I have no business to be there. So this is what we do: we sell to the petty vendors within our zone and they rather convey that across, because they know their way out, small-small routes that go to come back.

A CEMENCO manager described the distribution adjustments they made:

> At that time [before the war], we had trucks that conveyed the cement to our distributors in the leeward counties . . . But those trucks and other equipment was [*sic*] taken during the 1990 war. Everything was looted. So . . . we continued to distribute to people in those counties who were qualified, they applied and were selected, and then they were given a distributorship. And they were responsible to transport their own cement to those counties in which they established a distributorship.

Supply routes, however, varied in their dispersal potential: inputs with local substitutes lent themselves to radical supply chain dispersal, while those without required that alternative routes to specialized goods be found, often by crossing international borders to access other ports. Alcoholic spirit flavors, for instance, included some of both types: while RITCO took to sourcing flavors through Côte d'Ivoire and Ghana, NICOM, diversified its product line to deemphasize drinks mixed with imported flavors, introducing the now-popular "Bitter Cola" cooler. A NICOM manager explained the rationale: "it's produced from cola nuts that can be gotten locally." The localizing phenomenon is discussed in greater detail in Chapter 4.

Market hyperactivity. Market hyperactivity represents one manifestation of spatial and temporal dispersal of supply and distribution chains. The accepted wisdom asserts that war stifles market activity, as sellers and buyers will not be

able or willing to get to and from market with their wares in tow (Macartan Humphreys, 2003). In the Liberian case, however, market activity was only stifled for brief periods of extreme tension. As fighting subsided, though, markets became hyperactive, if hyperactivity can be defined as the processing of many more transactions than actual products produced. At least two factors produced this market hyperactivity: "the recycling effect" and the "hot potato effect."

Recycling occurs when a good is looted and the victim must then repurchase the same or a similar product on the market. A CEMENCO manager explained that during the Second War, "the only thing was that the trucks that were looted from the place, we had to compensate them [the rebels] to get the trucks from them." In other words, they had to buy their own trucks back from the looters—in effect, pay ransoms. This pattern was replicated in the cases of many businesses, especially when the product was crucial to the production process and when the only prospective buyer was the original owner. A manager at NICOM, a spirits manufacturer, related that:

> at a certain point in time [during the Second War] the Freeport was also looted, and we found some of our flavors, some of our alcohol [on the market], and we had to re-buy them [from the looters] . . . Nobody can buy your own thing, so we had to buy our own thing from them, and pay for it twice.

A manager at the national brewery, MB, related a similar anecdote about repurchasing looted equipment from the looters:

> When we got back in there [the brewery], it was devastating. They were there for like two weeks, but when we got in there, almost everything was gone. And when some of the machines they couldn't take away, they would remove the motors from them, so we had to go back on the market try to look for them, and they were reselling them. And nobody could buy them because we had the machines and nobody else had the machines! So nobody could buy the parts, so they resold to us!

The net effect of recycling is obviously to drain the capital resources of businesses and to redistribute it to the appropriative economy.

The hot-potato effect occurred as traders and venders grew less willing to carry finished products for long periods of time (whether to resale or transport them) than raw materials. In effect, as products became more processed (and thus more targeted), the discount rate on any investment concerning them would rise to compensate for the unwanted attention they attracted. This complicates the oft-cited observation that social discount rates rise during war for specific targeted demographics (see e.g. Leaning, Arie, and Stites, 2004): while that is true, rates seem to vary also by type of product. This logic informs the entire balancing act between supply, production, and

distribution. A manager at LISWINCO, a manufacturer of contract-grade wood and steel products, for example, described how distributors during and even after the war wanted less stock on hand (furniture, in that case), requiring more flexible, just-in-time production:

> Now the stores can take only a certain amount, like 12–15 pieces only. Before, they used to keep 25–50 pieces always in stock. This time, [if] they want something . . . they will call for it.

The same held true for the looters themselves. Property rights were so routinely violated that whether one had produced a product or simply stolen it, it was safer to get rid of it as soon as possible. As a manager at Parker Paints noted:

> It was astounding to see the mentality: rebels would take over a house, strip it bare, sell the doors, the window frames, even the wiring from the walls—everything—and then they would move into it!

Hyperactive markets actually meant that there were many more traders and vendors needed to distribute the same (or a smaller) number of goods. An especially large market grew up at Red Light, a traffic intersection that during the war was under the protection of ECOMOG forces, and which linked the markets of the rural, rebel-held territories with that of urban, government-controlled Monrovia. As a manager at MB described:

> It [Red Light] was kind of a small marketplace, but now it's bigger than Waterside [Market in downtown Monrovia], bigger than everywhere else, because that was the point of contact between the business people on this side and the business people on that side . . . So they [petty traders] would come, and some people would take the drinks from the factory there, carry there to sell and buy, some would go as far as to the [MB] factory and buy.

Large, active markets kept final goods constantly on the move and safer from predation. Predictably, though, large numbers of transactions heightened transactions costs. These costs tended to be lower than costs inflicted by predation when supply or distribution routes crossed the combat frontier, and thus spatial dispersal increased as the frontier approached.

3.3.3 *The Balancing Act*

PRODUCTION AS NERVE CENTER

The tripartite balance between supply, production, and distribution was a challenge for firms operating in peacetime as well as in war. However, wartime production demanded more rapid and fine-tuned responses to balance the equation because the situation could change so rapidly, and because there was

an imperative not to be caught with processed or finished goods on hand. As explained above, half-processed or fully-processed goods attract unwanted attention from soldiers or civilian looters, and will likely be summarily expropriated if found. Raw materials, on the other hand, are rarely considered valuable on the market. Thus, while excess raw materials can be stockpiled, production and distribution have to remain constantly in lock-step with one another. Because distribution was most often outsourced, production is the variable in the equation that lends itself most easily to control. Thus, the production process must be able to gear up and shut down quickly in response to opportunities to distribute. As a manager at NICOM explained, daily production during the war was estimated based on the number of petty traders waiting at the compound gates.

THE ROLE OF INFORMATION

Accurate information about new developments in the war was essential for coordination of all supply chain components. That information was obtained in one or both of two ways: technologically, and through employee networks. During the Second War, foreign-owned firms with capital reserves to draw on invested in expensive satellite internet hookups to monitor constantly updated security websites. Such was the case at USTC, whose finance manager explained, "there were websites you could go and get security briefings on Liberia. Yes, the UN provided that service. Even the US government had that service." Smaller firms used the radio to get information, but manager reported that they did not fully trust radio-broadcast information.

More commonly, firms relied on word of mouth for predictions about the timing and location of upcoming attacks. As a USTC manager related,

> There were some managers that were members of some groups downtown where they get information from. Based on that . . . some days, they come and say, "Our trucks are not going to town." They may not explain why, but we trust them for that. And it won't be long before you hear [about] something going [on] downtown.

Smaller, less well-endowed firms relied on this second information gathering method more intensively. A manager at NICOM described the daily process of gathering and disseminating information to petty traders:

> We called our fellow workers that live within the vicinity: "What news is downtown? Is there fighting?" At the time, we were not distributing, anyone who wanted to purchase had to come to us, so we were called in emergencies, "How is the situation this morning? Do you think it's safe for us to come to Monrovia?" We'd say, "Okay, everything is calm," and then, "We venture out and come." Sometimes we come maybe one hour, two hours, and then [snaps] thing breaks up again, and then everybody has to go back to his or her hideout.

The ability to rely on technology to gather and diffuse information enabled larger companies to downsize dramatically during the war. A manager at USTC related that "During the war, of course, we didn't even have up to 50 people here [a reduction of about 60% vis-à-vis the prewar workforce]. Basically, production, guys in the garage to drive us. Hardly any distribution." Smaller firms, though, might not be able to downsize as much, as with NICOM, which cut staff by 40 percent. NICOM, however, was then sourcing locally from petty traders and had a relatively protected location in central Monrovia. Meanwhile, a manager at RITCO, a firm of about the same size and product line on the intermittently rebel-held Bushrod Island, felt he could not fire any staff at all for risk of losing vital information sources. As he explained,

> When the rebels are grouping themselves together, you know we are all brothers and sisters in the country, so while the young men across there is planning something, he at the same time is advising his sister or the brother here that: be careful, we are coming! So at the end of the day, that information is sent to us, and we guard ourselves.

Locally sourcing companies had the added advantage of being able to ask the petty traders who supplied them about conditions in the areas they had just traversed. A LISWINCO manager, for instance, always made a point to ask traders where they had been and what they had seen and heard.

3.4 Lessons and Leads

This chapter has described in turn why production firm survival is important to countries prone to conflict, why a production network analysis is an appropriate lens to view the phenomenon, how predation selects for dispersed forms of economic activity, how dispersal can help to re-equilibrate the essential balance between supply chain components, and finally how important the constant supply of information is to production firms seeking to coordinate dispersal. I contend that in Liberia, the survival of specific sectors of the economy was not simply determined by trade-intensiveness or capital-intensiveness of the sectors in question. Rather, it was a function of the degree to which firms were able to cope with, and take advantage of, the dispersal that was required of them by environments of high predation. Such a conclusion does not invalidate the binary view, but it does indeed complicate it.

A nuanced view of both peace and war (and all the gray areas between) as a dance between production and predation will give policymakers a broader range of options when trying to assure the well-being of civilian populations caught up in conflict. Especially promising possibilities for reduction of conflict destructiveness would seem to include peacetime incentives for

production firms in at-risk economies to source their inputs locally, so that they might become accustomed to having redundant and dispersed supply lines. Thus, the economy might not be so easily held hostage by rebel control of a single port or key international routes. Other options might include ways of helping even small businesses and petty traders to become informed about developments in the war (perhaps via radio broadcasts), as well as communicate better with one another via cell phones or walkie-talkies. The latter point is especially critical considering the lock-step coordination between production and distribution that that is required for sustainable production in conflict. A better understanding of the daily distribution potential would allow production managers to turn out as many goods as possible without generating a surplus that could endanger their operations. Such options do not, of course, substitute for strong and determined interventions by a concerned regional and international community. Rather, they complement the tools already at policymakers' disposal, and open the doors to certain preventative and stop-gap measures that can be employed when more dramatic action is uncalled-for or unfeasible.

Descriptions, by their nature, usually do not make relational or causal claims. However, this chapter's descriptions carry implicitly causal claims: the dispersal strategies described above were not adopted at random, but in response to a predatory environment. In the following chapter, I will argue that these dispersal strategies in turn induced production firms' localization of inputs, thereby altering (and in some ways, intensifying) rural–urban trade.

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References

Abadie, Alberto and Javier Gardeazabal. 2003. "The Economic Costs of Conflict: A Case Study." *American Economic Review*, 93(1): 221–40.

Ajzenman, Nicolas, Sebastian Galiani, and Enrique Seira. 2014. "On the Distributed Costs of Drug-Related Homicides." *Working Paper Series*. Washington, DC: Center for Global Development.

Ali, Hamid. 2011. "Estimate of the Economic Cost of Armed Conflict: A Case Study from Darfur." Doha: Al Jazeera Centre for Studies.

Amsden, Alice. 2001. *The Rise of the Rest: Challenges to the West from Late-Industrializing Economies*. Oxford: Oxford University Press.

Berdal, Mats and David M. Malone. 2000. *Greed and Grievance: Economic Agendas in Civil Wars*. Boulder: Lynne Rienner.

Boudreaux, Karol and Jutta Tobias. 2009. "The Role of Entrepreneurship on Conflict Reduction in the Post-Genocide Rwandan Coffee Industry: Quantitative Evidence from a Field Study." *Entrepreneurship and Conflict*. Londonderry, Northern Ireland: UNU-WIDER.

Brauer, Jurgen and J. Paul Dunne. 2010. "On the Cost of Violence and the Benefits of Peace." *14th Annual International Conference on Economics and Security*. Izmir, Turkey.

Brück, Tilman, Olaf J. de Groot, and Carlos Bozzoli. 2012. "How Many Bucks in a Bang: On the Estimation of the Economic Costs of Conflict." M. R. Garfinkel and S. Skaperdas, *The Oxford Handbook of the Economics of Peace and Conflict*. Oxford: Oxford University Press.

Caruso, Raul. 2008. "A Model of Conflict, Appropriation and Production in a Two-Sector Economy." *Paper presented at the AEA/ASSA Conference*. New Orleans.

Collier, Paul. 1999. "On the Economic Consequences of Civil War." *Oxford Economic Papers*, 51: 168–83.

Collier, Paul. 2007. *Post-Conflict Recovery: How Should Policies Be Distinctive?* Oxford: Centre for the Study of African Economies.

Conroy, Stephen J. and Topher L. McDougal. 2014. "Addressing the Call for Leadership for Peace and Prosperity." *Business, Peace, and Sustainable Development*, 3: 3–12.

CRSS. 2010. "The Cost of Conflict in Pakistan," Islamabad: Center for Research and Security Studies.

de Groot, Olaf J. 2009. "A Methodology for the Calculation of the Global Economic Costs of Conflict." *GECC Project Papers*. Berlin: DIW Berlin.

Desai, Sameeksha. 2009. "The Scope of Entrepreneurs in Disarmament, Demobilization, and Reintegration Processes." *Entrepreneurship and Conflict*. Londonderry, Northern Ireland.

Desai, Sameeksha, Zoltan J. Acs, and Utz Weitzel. 2009. "A Theory of Destructive Entrepreneurship." *UNU-WIDER Project Workshop on Entrepreneurship and Conflict*. Londonderry: UNU-WIDER.

Fearon, James D. 2005. "Primary Commodity Exports and Civil War." *Journal of Conflict Resolution*, 49(4): 483–507.

Ferguson, Neil T., Maren M. Michaelsen, and Topher L. McDougal. 2016. "From Pax Narcótica to Guerra Pública: Explaining Civilian Violence in Mexico's Illicit Drug War." In C. H. Anderton and J. Brauer, *Economic Aspects of Genocide, Mass Killing, and Their Prevention*. New York: Oxford University Press.

Frontier Economics. 2010. *The Cost of Future Conflict in Sudan*. London: Frontier Economics.

Goldberg, Michael, Kwang Wook Kim, and Maria Ariano. 2014. "How Firms Cope with Crime and Violence: Experiences from around the World." *Directions in Development*. Washington, DC: World Bank.

Government of Liberia. 2004. *Millennium Development Goals Report 2004*. United Nations, Monrovia.

Hess, Gregory. 2003. "The Economic Welfare Cost of Conflict: An Empirical Assessment." *CESifo Working Papers*. Munich: Center for Economic Studies and Ifo Institute for Economic Research.

Hiatt, Shon. 2012. "Clear and Present Danger: Planning and New Venture Survival Amid Political and Civil Violence." *Working Papers*. Cambridge, MA: Harvard Business School.

Hotelling, Harold. 1929. "Stability in Competition." *Economic Journal*, 39(153): 41–57.

Humphreys, Macartan. 2003. *Economics and Violent Conflict*. Cambridge, MA: Harvard Program on Humanitarian Policy and Conflict Research.

Humphreys, Macartan. 2005. "Natural Resources, Conflict, and Conflict Resolution: Uncovering the Mechanisms." *Journal of Conflict Resolution*, 49(4): 508–37.

Karl, Terry. 1997. *The Paradox of Plenty: Oil Booms and Petro-States*. Los Angeles: University of California Press.

Kolbe, Athena, Robert Muggah, and Marie N. Puccia. 2012. *The Economic Costs of Violent Crime in Urban Haiti: Result from Monthly Household Surveys, August 2011–July 2012*. Rio de Janeiro: Igarape Institute.

Lawrence, Paul R. and Jay W. Lorsch. 1969. *Organization and Environment: Managing Differentiation and Integration*. Homewood, IL: Richard D. Irwin.

Leaning, J., Arie, S., and Stites, E. 2004. "Human Security in Crisis and Transition." *Praxis: The Fletcher Journal of International Development*, 19: 5–30.

Le Billon, Philippe. 2001. "The Political Ecology of War: Natural Resources and Armed Conflicts." *Political Geography*, 20: 561–84.

Li, Yu and Karen R. Polenske. 2004. "Measuring Dispersal Economies." *Entrepreneurship, Spatial Industrial Clusters and Inter-Firm Networks*. Trollhätten, Sweden: Universities of Trollhätten and Udevalla, 625–33.

Lidow, Nicholai. 2016. *Violent Order: Rebel Organization and Liberia's Civil War*. Cambridge: Cambridge University Press.

Lindgren, Göran. 2005. "The Economic Costs of Civil Wars." *9th Annual International Conference on Economics and Security*. Bristol, UK: Economists for Peace and Security.

March, James G. 1991. "Exploration and Exploitation in Organizational Learning." *Organizational Science*, 2(1): 71–87.

McCoskey, Suzanne Kathleen. 2009. "Foreign Direct Investment and Entrepreneurial Capture in Pre-Conflict Liberia." *Entrepreneurship and Conflict*. Londonderry, Northern Ireland: UNU-WIDER.

McDougal, Topher L. 2010. "How Production Firms Adapt to War: The Case of Liberia." *UNU-WIDER Working Papers*. Helsinki: UNU-WIDER.

McDougal, Topher L., Talia Hagerty, Lisa Inks, Caitriona Dowd, and Stone Conroy. 2015a. "Macroeconomic Benefits of Farmer-Pastoralist Peace in Nigeria's Middle Belt: An Input-Output Analysis Approach." *Economics of Peace and Security Journal*, 10(1): 54–65.

McDougal, Topher L., Talia Hagerty, Lisa Inks, Claire-Lorentz Ugo-Ike, Caitriona Dowd, Stone Conroy, and Daniel Ogabiela. 2015b. "The Effect of Farmer-Pastoralist Violence on Income: New Survey Evidence from Nigeria's Middle Belt States." *Economics of Peace and Security Journal*, 10(1): 66–77.

Ministry of Health and Social Welfare. 2007. *Liberia Health System Overview*. Monrovia: Ministry of Health and Social Welfare.

National Transitional Government of Liberia. 2004. *Joint Needs Assessment*. Monrovia.

Olson, Mancur. 2000. *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships*. Oxford: Oxford University Press.

Pugh, Michael and Neil Cooper. 2004. *War Economies in a Regional Context: Challenges of Transformation*. Boulder: Lynne Rienner.

Ra, Sungsup and Bipul Singh. 2005. "Measuring the Economic Costs of Conflict." *Nepal Resident Mission Working Papers*. Manila: Asian Development Bank.

Rettberg, Angelika. 2009. "Entrepreneurial Activity and Civil War in Colombia: Exploring the Causal Mechanisms." *Entrepreneurship and Conflict*. Londonderry, Northern Ireland: UNU-WIDER.

Robles, Gustavo, Beatriz Magloni, and Gabriela Calderón. 2013. "The Economic Costs of Drug-Trafficking Violence in Mexico." *Working Paper Series*. Stanford, CA: Stanford University.

Ross, Michael. 2002. *Oil, Drugs, and Diamonds: How Do Natural Resources Vary in Their Impact on Civil War?* New York: International Peace Academy.

Ross, Michael. 2004a. "How Do Natural Resources Influence Civil War? Evidence from Thirteen Cases." *International Organization*, 58: 35–67.

Ross, Michael. 2004b. "What Do We Know About Natural Resources and Civil War?" *Journal of Peace Research*, 41(3): 337–56.

Skaperdas, Stergios, Rodrigo Soares, Alys Willman, and Stephen C. Miller. 2009. *The Costs of Violence*. Washington, DC: World Bank.

Snyder, Richard. 2004. *Does Lootable Wealth Breed Disorder? A Political Economy of Extraction Framework*. Notre Dame: Hellen Kellogg Institute for International Studies.

Snyder, Richard and Ravi Bhavnani. 2005. "Diamonds, Blood, and Taxes: A Revenue-Centered Framework for Explaining Political Order." *The Journal of Conflict Resolution*, 49(4): 563–97.

Snyder, Richard and Angelica Duran-Martinez. 2009. "Does Illegality Breed Violence? Drug Trafficking and State-Sponsored Protection Rackets." *Crime, Law, & Social Change*, 52(3): 253–73.

United Nations Development Programme. 2000. *Human Development Report 2000: Human Rights and Human Development*. New York: United Nations Publications.

World Bank. 2016. *World Development Indicators*. Washington, DC World Bank.

World Bank. 2011. *World Development Report 2011: Conflict, Security, and Development*. Washington, DC: World Bank.

4

Stateless State-Led Industrialization

4.1 Overview

In the preceding chapter, I showed that firms in Liberia during the civil wars increasingly came to rely upon highly dispersed networks of traders to source from, and distribute to, the rural hinterlands. In this chapter, I suggest that these splintered trade networks effectively forced firms to localize many of their inputs and to internalize many of the functions that would otherwise be external—imitating the effects of state-led industrialization in some manner.

It is often argued that the state has a large and beneficial role to play in development by protecting and nurturing immature or underdeveloped local industries until they are able to compete on the global market. Whether the argument takes the form of import substituting industrialization (ISI) or state-led industrialization (SLI),[1] a critical underlying assumption is that there exists a state apparatus strong enough to enact and enforce the requisite policies. These import tariffs, effective rates of protection (ERPs), or other exchange controls and quotas (as well as import tariff rebates for SLI industries) (Baer, 1972); firm localization incentives; exchange rate overvaluation; and muscular, state-led development financing. The strong state assumption held in Asia and Latin America of the 1950s–1970s, where countries enthusiastically adopted such policies to the remarkable indifference of rich governments (Amsden, 2007, ch. 5).

The same is no longer true of today's African states, where weak postcolonial governments often stagger under massive debt, contend with powerful forces pushing industrial and trade liberalization (Rodrik, 2011, 1997), and crucially, struggle (like their colonial and pre-colonial predecessors) to project political power over the full extent of their sometimes vast, generally sparsely

[1] Bruton (1998) points out that the popular term ISI is somewhat misleading, as ISI consisted of a number of policies that extended beyond import substitution. This chapter follows his suggestion of using SLI in its place.

populated territories (Herbst, 2000). Between World War II and 2003, a rash of more than 127 civil wars in 73 different states has resulted in the deaths of more than 16 million people (Fearon and Laitin, 2003). These intrastate conflicts are less intense (in terms of deaths per unit time) but last longer than the interstate conflicts that characterized the prewar period. The blending of war and peace, crisis and normalcy, has in many countries produced protracted periods of slow-burning civil war—in short, a new status quo for the affected economies.[2] In such cases, state capacity is often weak, and the legitimacy of government may be challenged by rebel factions who control pockets or even large swathes of territory within the nominal national boundaries. For "fragile" states desperately wishing to avoid the fates of their conflict-racked neighbors, the adoption of SLI policies is out of the question, reliant as they are for their own security and longevity on foreign aid, imports, and (in many cases) peacekeeping forces from entities that systematically favor trade and industry liberalization (McDougal, 2013).

What befalls the economy in countries that lose their grip and descend into violence? Using the case of Liberia, I argue that the effects of civil war on the private sector, while overwhelmingly disastrous, can, especially for infant firms that manage to survive, convey many of the benefits (and liabilities) that ISI and SLI policies have had elsewhere. Specifically, the war economy in Liberia mimicked import tariffs, localized the staffs of many companies, raised local content in products, and even spurred on technical learning and knowledge accumulation. All of these outcomes are reminiscent of SLI aims, and are particularly remarkable in light of the fact that they occurred more or less in a vacuum of state institutions (much less state intervention).

I stress that in calling attention to the war's silver lining, I am in no way denying the existence of a very dark cloud (see Section 4.3 The Cloud). In addition to its dreadful humanitarian impact, the war precipitated falling output, rapid declines of total factor productivity, capital destruction and flight, and labor dislocation and emigration. My intention in calling attention to ways in which a status quo of crisis benefited some companies is not to downplay the horror of the war years, nor to suggest that the war was in any way desirable. Rather, I first wish to dispel the myths of the wartime private sector as purely appropriative (i.e. predatory or exploitative), and of the post-conflict economy as virtual tabula rasa. Second, I wish to highlight the

[2] Somalia, for instance, has effectively lacked a state since the fall of the Siad Barre regime in 1991. Conflicts in the Democratic Republic of Congo, despite discrete names such as First and Second Congo War, have continued sporadically over time and geographic space since 1994, cumulatively amounting to the world's deadliest conflict since World War II. Liberia, the country profiled in this paper, has known a combined total of 6 years of relative peace over the past two decades.

importance of protecting local industries in postconflict economies. The latter is a mandate that too often goes unnoticed in the postwar drive to attract FDI and donor money.

This chapter is organized as follows. In Section 4.2, I summarize my research methodology, touching on the history of the Liberian conflict along the way. In Section 4.3, I briefly describe the most widely accepted views on the effects of civil war on developing economies. In Section 4.4, I describe how the war benefited certain industries in ways that SLI policies were originally geared to effect. In Section 4.5, I qualify the similarities between war and SLI with areas in which their effects clearly vary. Section 4.6 argues that such a similarity suggests that postconflict planners should consider adopting certain temporary SLI policies.

4.2 Methods for Examining Conflict Effects on Firms

This study's research design was deliberately qualitative and was intended to generate hypotheses rather than test them (as a survey might do). Thus, while case selection was performed to maximize certain independent variables described above, no attempt was made to create a sample size capable of generating statistically significant results.

I chose the case of Liberia to study production firm survival in civil war for a number of reasons expanded upon above (see Section 3.1). I employed in-depth, semi-structured interviews to obtain information on business operations before, during, and after the wars. For the purposes of this chapter, the interview included four basic questions, elaborated and adapted as appropriate:

1. Did the effective prices of your inputs rise or fall due to predation, war insurance, or any other war-related reason? How so/why not?
2. Did your firm substitute imported inputs with local products? How so/why not?
3. Did any employees leave or get laid off during that time? How many and what nationality were they? Did you hire any new employees? How many and what nationality were they?
4. Did your firm begin or terminate any operations as a result of the war? If begun, did you have the capacity to perform these operations previously? How did these developments come about, and have these adaptations been retained in the postwar years? Why/why not?

I studied 11 Liberian production firms and 1 Sierra Leonean firm. Sierra Leone Brewery was included as a matched pair case for Monrovia Brewery. Being located in the capital of a neighboring state that underwent a related

and structurally similar set of conflicts (i.e. rurally based insurrections that lay siege to the capital) over a similar period of time (1991–2002), both breweries coped with similar problems of predation and disruption in their respective supply chains. Potential firms were identified as described above in Chapter 3).

What percentage of Liberian production firms do the 11 listed above represent? There have been only two audits of industry in Liberia in the past 20 years. The first, performed in 1989–1990 just before the onset of the first war, counted 135 firms, dominated mainly by natural resource extraction operations (e.g. timber, minerals, fisheries, rubber, and cocoa), and a much smaller number of production firms (e.g., food and beverage, paper products, and building materials) (see Table 4.1). The second, performed by the Ministry of Commerce (2007) three years after the end of war, details no less than 5,186 firms. This much higher number reflects the fact that the table is not filtered based on industry (i.e. services firms are included) nor on size. Most of these firms are quite small by tax contribution—the range in this list is from US$3.50 to US$1,125, with a median tax payment of US$35 and a mean of US$165. Unfortunately, few standard categories are employed in the database, and so it is impossible to construct a table similar to Table 4.1.

Table 4.1 Number of Liberian firms by type, 1989–90

Type	Product	No. of firms	% of total
Natural resource industries	Forestry products exports	50	37.0%
	Extractive	28	20.7%
	Fisheries	14	10.4%
	Rubber	11	8.1%
	Palm	5	3.7%
	Cocoa and coffee	2	1.5%
	Exporters of wildlife	1	0.7%
	Total natural resource industries	111	82.2%
Industrial production/ manufacture	Food and beverage	8	5.9%
	Chemical	4	3.0%
	Paper industry	4	3.0%
	Other manufacturing	3	2.2%
	Building materials	2	1.5%
	Exporters of metal scraps	2	1.5%
	Cosmetics, soaps, and detergents	1	0.7%
	Total industrial production/manufacture	24	17.8%
Total		135	100%

Source: Ministry of Commerce, Republic of Liberia (1989). Calculations by the author.

4.3 The Cloud

Civil war and other forms of violent internal conflict are widely seen as having generally deleterious effects on most components of an economy, though some suffer more than others and there are often winners in the "war economy."[3] Examples of retrograde economic actors who do well when most are suffering most obviously include arms dealers and business people in favor with successful warlords (Reno, 1997, 2003). Others who facilitate violence might include dealers of powerful motorboat engines that allow pirate skiffs to overtake large ships off the Somali coast (Shortland, 2011). War may also allow entrée into commerce for segments of the population who normally would be excluded from it, such as women (Kumar, 2001).

Civil war may negatively impact on scales ranging from the individual to the nation and beyond. Different scales are typically treated differently by economists: negative effects on individuals, households, and firms are deemed microeconomic costs of conflict, whilst negative effects on government finances, and regional and national economies are deemed the macroeconomic costs of conflict. In microeconomic terms, violent conflict usually depresses household consumption– one measure often used as a proxy for income (Serneels and Verpoorten, 2012, Verwimp and Bundervoet, 2008). The mechanisms depressing household income may be multifarious (Brück et al., 2012), including deaths or injuries directly resulting from violence, the spread of disease, and lack of healthcare in conflict-affected areas, inaccessibility of farmland and other places of work, the pillaging of productive assets (Hegre et al., 2009), and population displacements that result in disrupted livelihoods (Ibáñez and Moya, 2006). For businesses and households alike, physical capital aiding in production processes may be damaged or destroyed.

Even low-grade violent conflicts may entail serious microeconomic costs. For instance, disputes between pastoralists and farmers in Nigeria's ethnically and religiously diverse Middle Belt region attract less media attention and academic scrutiny than petroleum extraction-related violence in that country's Niger delta region (Hazen and Horner, 2007, Hunt, 2006, Obi, 2010, Watts, 2007) or violent extremism in the northeast (Aghedo and Osumah, 2012, Onuoha, 2010). Yet one study found that incomes in the area could be increased by anywhere from 64 percent to 210 percent if violence were reduced to near-zero levels (McDougal et al., 2015).

[3] Debate has variously raged, subsided, and resurged over the decades following World War II about whether or not military spending may jumpstart economic growth in industrialized nations. Evidence for a so-called "Military Keynesianism" is mixed and contested (Agostino et al., 2012, Brauer and Dunne, 2012, Dunne, 2011, Dunne et al., 2013, Dunne, 1985, Smith and Dunne, 2015), but is generally regarded as inapplicable in the case of less-developed countries who largely import their arms.

In addition to the income costs mentioned above, human costs may be enormous. These include welfare costs associated with grieving, physical pain, emotional anguish, and psychological traumatization. In economic terms, welfare costs might be determined by asking what people would have been willing to pay to avoid the harms and distresses that attend war (Hess, 2003). Moreover, legacy healthcare costs associated with long-term care of the disabled may be staggering (Stiglitz and Bilmes, 2012, Stiglitz and Bilmes, 2008). Less amenable to cost-benefit analysis, violence may also break down intergroup social capital (Varshney, 2001). The intensity of violence in Mozambique's civil war may have eroded local institutions such as traditional governance structures and agricultural cooperatives, or limited their access to government (McDougal and Caruso, 2016). Violence may also strengthen certain types of institutions and social bonds, however. Recentness of violence may have mobilized local communities to organize for collective land grants in Mozambique (McDougal and Caruso, 2016), and Nandé traders in the Democratic Republic of Congo developed a very strong intra-ethnic solidarity during that country's long period of violence (Kabamba, 2008, Kalyvas, 2006).

Macroeconomic costs of violence may also be severe (Humphreys, 2003b), but their estimation depends to great extent on the scope and scale of the violence being assessed. For instance, the 2013 *Global Peace Index* reports that global spending on violence containment generally—military, police, and private security expenditures inclusive—reached roughly US$9.5 trillion (IEP, 2013), or approximately 13.1 percent of global GDP.[4] And this figure likely does not capture the extent of costs associated with violence successfully inflicted. Reductions in GDP due to civil war range from 8.3 percent in Nepal (Ra and Singh, 2005) to 20–23 percent for Rwanda (Lopez and Wodon, 2005) to a projected 57 percent in a potential future Sudanese conflict (Frontier Economics, 2010). Annual reductions in GDP growth have been calculated variously from 2.2 percent (Collier, 1999) to 15 percent (International Action Network on Small Arms (IANSA), 2007).

In war, investment rates drop dramatically as capital flees in anticipation of, during, and after war, depending on the intensity, length, and extent of the conflict (Imai and Weinstein, 2000). Economies in conflict are often hollowed out of intermediary industries (Collier, 1999). The labor market may be distorted by slavery and forced militia recruitment. Human capital tends to flee if it can, and is not replaced as schools shut down, go unfunded, or are abandoned. Total factor productivity plummets as technological innovation comes

[4] Macroeconomic costs of conflict are often expressed in percentage terms of GDP, although it is debated how useful a measure this is, given the fact that GDP may be seen as rising if a country decides to deplete its savings or take on unsustainable debt in response to a security threat. Moreover, such measures do not include the informal sector (Brauer and Dunne, 2012).

to a halt, workers are prevented from accessing the workplace, and transporting and marketing goods becomes more difficult (Humphreys, 2003b). Collier (1999) notes that sectors that depend heavily on capital and trade are more vulnerable than those that do not. Finally, war tends to exacerbate inflation as many goods become scarce and postconflict rebuilding entails simultaneous society-wide expenditures on construction and equipment.

When civil war results in the toppling or serious weakening of a government, it is viewed as an opportunity to assess the economic benefits and costs of having a state in the first place. Economists examining development in stateless countries (e.g. Nenova, 2004, and Nenova and Harford, 2004) often balance the lack of enforced economic institutions (e.g. property rights and contract enforcement) against the benefits of economic deregulation and freedom from rent-seeking. One study suggests that while certain industries in Somalia have actually benefited from the lack of red tape, the private sector is severely constrained in how far it may develop without a state apparatus. Such an assessment fits with the New Institutional Economics (Williamson, 2000), which describes nested tiers of institutions with increasingly long time horizons: economic markets, governance modes (e.g. contracts), political and legal institutions that enforce contracts and property, and societal norms. Absent the third tier of government-supported institutions, transactions continue but are limited in their potential for complexity and long time horizons. In the Somali case, the previous government was given over to rent-seeking that it is debatable whether it represented more of a burden than a boon for its economy (Leeson, 2008). In brief, states' economic institutions are needed for long-run development (Acemoglu et al., 2002), though particularly bad states in less-developed countries may actually hamper it. The implication is that war will not likely prove a net positive for an economy unless it results in the toppling of a particularly brutal or kleptocratic regime.

4.4 SLI in Historical Context

Following World War II, most developing countries adopted a suite of economic policies geared to promote industrialization collectively termed "Import-Substitution Industrialization" (or, in this chapter, "State-Led Industrialization") policies. Generally, their purpose was, as the name implies, to substitute imported industrial goods for industrial goods manufactured domestically, thus building a strong domestic manufacturing sector. They were adopted explicitly and with gusto by large Asian and Latin American countries in the 1950s and 1960s, and spread to Africa and smaller developing countries in the late 1960s (Kirkpatrick, 1987). From very early on, the main

arguments in favor of SLI revolved around nurturing "infant industries,"[5] and have recently centered on the role of tacit knowledge in this process.

4.4.1 *Infant Industry Protection*

Developing countries of the post-World War II era were not the first to adopt SLI policies. Most, if not all, countries of the developed world have, at some point during the eighteenth and nineteeth centuries, used similar strategies.[6] The early US protected its nascent industries, justifying the move with the infant industry rationale as first pioneered by Alexander Hamilton and Daniel Raymond (Chang, 2002).[7] Later early developers often rationalized the SLI approach with the same argument, contending that it was the country's duty to protect and nurture industrial manufacturing until such point as they were capable of competing internationally.

4.4.2 *Dependency Theory*

After World War II, many developing countries were flush with foreign exchange from raw materials (Amsden, 2007), but international firms were outcompeting local industries and exchange reserves were dwindling fast. Against this backdrop, Prebisch (1950) and Singer (1950) argued that late-developers could not rely on static comparative advantage to develop. If they did, they would be trapped in the world division of labor, due to rising wages of monopolistic firms in the North and stagnant wages in the South where surplus labor and weak unions were the norm (Bruton, 1998). Moreover, low-income elasticities of demand for raw materials in the developed world would gradually prompt a secular decline in the terms of trade, thus widening the income gap (Prebisch, 1959). While this secular decline in terms of trade might eventually prompt a "natural" shift toward industrial investments, Nurkse (1953) also introduced a broader export pessimism

[5] This term is not always accurate, as it may wrongly imply that the industry itself is newly born, whereas it may simply be long-languishing or chronically underdeveloped.

[6] Chang notes, for instance, that England itself, the first industrializer and modern bastion of free trade ideology, introduced and even innovated a wide range of international trade tariff (ITT) policies (such as export subsidization and import tariff rebates on imports for exporting industries) from the fourteenth century until the 1846 repeal of the Corn Laws—not coincidentally the time of the second industrial revolution in Britain. Perhaps because Britain was the first industrializer, the political arguments in favor of such policies did not use the infant industry, or "catch-up," argument, as there was no country ahead of them. Rather, protectionists like Malthus tended to assert (in the case of the Corn Laws) that lower prices for corn would stunt industrial growth by reducing agricultural wages and thus industrial demand in a still largely rural country.

[7] These ideas would later spread to Germany by way of Frederick List (Chang, 2002), where they would manifest as a concerted effort on the part of financial institutions to nurture and grow the industries in which they had a vested interest (William J. Bernstein, 2008), state investment, and industry-specific subsidies.

underpinned by skepticism that the rich world's markets would be able to absorb all the exports of an industrially developing world. Finally, Keynes's insight that even a perfectly functioning labor market may not clear due to a disconnect between real and nominal wages undermined faith in allocative equilibria (Bruton, 1998). To head off the fate of impoverishment, developing countries had to buck the global division of labor by raising the capital/labor ratio, replicating Northern development patterns, and generally investing heavily in becoming industrially self-sufficient.

4.4.3 *Tacit Knowledge*

A large part of the reasoning behind the infant industry protection argument was the implicit assumption (later made explicit) that knowledge was in part tacit—that is, that it is unable to be codified, converted into information, and transmitted. If knowledge were perfectly codifiable, it would be traded like any other good, following the Heckscher–Ohlin–Samuelson trade model. In the H–O–S model, all firms in the same industry are assumed to have perfect knowledge, and thus to have equal productivity coefficients. Thus, if one nation's firms are outperformed by another's, it is because they are not exploiting their comparative advantage (e.g. cheap labor). Furthermore, Pareto optimality occurs naturally in the absence of market distortions, and therefore, firms finding themselves outcompeted are advised to lower prices (and therefore wages) rather than invest in the still-maturing asset of human capital. Indeed, Veblen (1922) believed that knowledge in the modern world would become ever more codifiable as economies shifted toward information-intensive technology and away from learned, artisanal trades.

However, a great deal of empirical evidence (see e.g. Wallsten, 2001) and a growing body of theory, including Schumpeter's early (1934) theory of economic development as innovation-driven,[8] New Growth Theory (see e.g. Romer, 1994) and New Economic Geography (see e.g. Krugman, 1991), suggest that modern economies in fact require more, not less, tacit knowledge. This tacit knowledge seems to be generated and transmitted best by people in close proximity to one another. Indeed this fact is cited as one of the very reasons that cities exist in the first place, and why accumulations of capital tend to attract more capital—increasing returns to scale make capital distribution "lumpy" rather than spreading to where other factors of production are cheapest according to the Law of Variable Proportions. Tacit knowledge generates spillovers, then, but the spillovers do not spill very far.

[8] Schumpeter's theory has modern echoes in the work of Lester and Piore (2004).

4.5 Resemblances to SLI in Liberia

4.5.1 *Import Tariffs*

The onset of the war in Liberia had certain SLI-like effects on the Liberian economy. These included the mimicry of import tariffs, raising local content of manufactured goods, localization of staff (and, on a market percentage basis, of companies as well), and generally promoting knowledge-accumulation in local industries.[9] It should be noted that while regulations on tariffs, local content, and local staff constituted SLI policy *tools*, knowledge accumulation was a SLI policy *goal*. Import tariffs were used in SLI to "buy time" for infant industries to mature. The Liberian war mimicked tariffs by way of predating imported inputs, thus increasing the price per unit.

Located on Bushrod Island just north of downtown Monrovia, the Freeport was routinely overrun by rebels during the First and Second Wars, both for political and economic reasons. Politically, it was the lifeline of Monrovia where the sitting governments were headquartered. Economically, it was the major source of processed and semi-processed goods, all of which were highly valued and thus often predated. Firms that depended heavily upon imported inputs were forced to contend with (1) erratic periods of input unavailability, (2) looted merchandise, and (3) war insurance, all of which increased the costs of importing.

In the case of sporadic unavailability of inputs, firms with the means could invest in on-site storage facilities for raw materials that would not draw unwanted attention. Monrovia Breweries, for instance, maintained a stock of six to eight months' worth of barley and hops and reordered four months prior to the anticipated time the stock would run out. As a manager at USTC, the local Coca-Cola bottling company remarked: "the shipment is not frequent enough. To adapt to that, you tend to stock a lot more materials that you won't get locally." Certain stocked materials also demanded more capital intensive storage facilities than others. While CEMENCO, the local subsidiary of a German multinational cement company, could store its gypsum outside, the clinker would coagulate in the rain, and so required a large shed that could house up to 30,000 tons.

[9] It might also be argued that exchange rate overvaluation was another trait that the war years shared with ISI standard tactics. Collier (2007) notes that high social discount rates favor inflationary financing among wartime governments. The Liberian dollar, whose value was long officially pegged at par with the US dollar (from 1940 to 2005), in reality plummeted during the war, falling 34 percent in 2001–02 alone (IMF, 2003) when governments were mainly concerned with military, not macroeconomic, problems. Upward pressure on inflation also came from the private sector, as most local consumers pay in Liberian dollars (though the US dollar is accepted as legal tender) while businesses order inputs in dollar denominations. However, it is difficult to draw a similarity here, since the mimicry of import tariffs applied to all imports, including fixed capital. In SLI, by contrast, exchange rate overvaluation was intended to promote the purchase of just such fixed capital that infant industries needed to get started.

In the second case, looting from the Freeport and elsewhere sometimes forced firms to purchase the same imported products more than once. This pattern was replicated in the case of many businesses, especially when the product was crucial to the production process and when the only prospective buyer was the original owner. A NICOM manager related that:

> at a certain point in time [during the Second War] the Freeport was also looted, and we found some of our flavors, some of our alcohol [on the market], and we had to re-buy them [from the looters] . . . Nobody can buy your own thing, so we had to buy our own thing from them, and pay for it twice.

As mentioned above, the net effect of such "recycling" was to drain the capital resources of businesses and to redistribute it to the appropriative economy.

In the third case of import tariff mimicry, importing firms paid war risk insurance on shipments coming to port in Liberia. As a manager at USTC explained:

> Shipping companies still consider Liberia a war zone. We still pay war risk insurance. Ships coming from the US or Europe to Liberia have much more money per weight [sic] than the same cargo going down south to a place like Nigeria, even though Nigeria is a much longer distance, but it's not classified as a war zone. We have to pay a little bit more . . .

4.5.2 *Local Content*

The war generally had the effect of raising local content in domestically produced goods. Predation of goods increased as a function of (1) proximity to the combat frontier, (2) soldier/civilian predatory tendencies, and (3) the value of the targeted good (usually higher for processed goods than raw materials—see Chapter 3). Predation tended to disperse economic activity both spatially and temporally, a strategy that minimized the risk of appropriation. This tactic implied that supply (and distribution) chains splintered into reticulated networks as they crossed the combat frontiers. This spatial dispersal required an army of traders with intimate knowledge of geography and the local inhabitants. A manager at Parker Paints, a family-run paint manufacturer, remarked that "[a] lot of small-scale trading [took place]. People who had never been involved in business before became traders." Consequently, the number of transactions per unit distance transported increased geometrically, along with transactions costs per unit distance.

In this environment, Monrovia-based industries found it cheapest and easiest to import their inputs via the local Freeport as the combat frontier approached and impeded access to secondary cities. However, once Bushrod Island and the Freeport began to fall sporadically under rebel control and predation increased there, many firms retooled their production to rely less

heavily on imported inputs and more on local goods. The local content effect was strongest among firms that (1) were of medium size, and (2) had with some flexibility in terms of the inputs they could accommodate in the production process.

Mid-sized firms were not too small to survive the heavily predatory environment: they had enough stored fat to get them through the lean times. On the other hand, they were more pressured to localize their supply chains than large firms, which could more easily afford to ride out even protracted periods of fighting in the expectation of eventually landing a large import shipment. NICOM, a mid-sized manufacturer of alcoholic spirits, diversified its product line to de-emphasize drinks mixed with imported flavors (though it still sourced many of these from neighboring countries), and introduced the now-popular "Bitter Cola" cooler. A NICOM manager explained the rational: "it's produced from cola nuts that can be gotten locally."

But even mid-sized firms could not cope if their supply chains were inherently inflexible (i.e. had no local substitutes), especially if they suffered any predation of their stocks. Parker Paints lost a US$500,000 stock of pigments and alkaline residues when looters dumped them on the factory floor to obtain the US$2 plastic drums that contained them. Without stock and unable to find local substitutes for any of their inputs, the business closed its doors. As one Parker Paints manager explained:

> You know like I said, Parker Paint is from the heart, but we bring in 95% of our raw materials. Everything we bring, except for water. And our solvents . . . we buy them locally. Except for water for water-based paints, we bring everything. Everything . . . [from] the tin to make the cans . . . [to the] titanium oxide . . .

The exception to the "Goldilocks" size rule of adaptation (not too big, not too small) is found in large firms with storage capacity which, while more stable and thus less likely to localize their supply chains, could be convinced to do so if their resources had been particularly drained by predation. Such was the case in neighboring Sierra Leone, where the large facility of Heineken-owned Sierra Leone Breweries, brewers of the national Star Beer, was decimated by the rebel Revolutionary United Front (RUF). In the wake of the war, Sierra Leone Breweries has made a conscious decision to localize strategic parts of its supply chain, in cooperation with the Common Fund for Commodities (a UN-mandated body), by sourcing locally grown sorghum as a substitute for European hops.

Since products that embodied any sort of processing were more highly predated, intermediary industries were soon driven out of the market and low-value inputs preferentially chosen over high value. The fittest survivors in that climate were industries that could take "worthless" raw materials and rapidly produce finished products whenever distributors became available to

take the valuable goods off of their hands. Companies were thus forced to forego semi-processed materials (often produced in foreign-owned factories in the formal sector) for raw materials (sourced by local businesspeople in the informal sector). A manager at LISWINCO, a mid-size steel welding and wood processing firm producing gates, doors and furniture, explained:

> Until that time [1990, when the NPFL/INPFL closed in on Monrovia], we used to get our wood directly from the [foreign-owned] saw mills. After 1990, people [informal, petty loggers] start using power saws, going to the bush to get the wood, so we would take wood from them.

4.5.3 *Staff and Firm Localization*

The war environment was also conducive to the promotion of locals in foreign-owned businesses that continued to produce, and (possibly) allowed local firms greater market share than they previously enjoyed. Upon the outbreak of war in 1989, many foreign-owned businesses shut down and evacuated their expatriate staff. They expected to send the staff back as soon as security was reestablished, but were soon unnerved by the longevity of the violence. This was the case with the United States Trading Company (USTC), formerly a diversified importer and bottling company, which immediately went about selling off its Liberian assets upon resuming operations in 1991. Its Coca-Cola bottling division, however, was too large for any local buyer, and so the mountain came to Mohamed: in 1996, USTC replaced much of its expatriate staff with African consultants (both Liberian and from other West African countries) originally seconded to it by Deloitte & Touche. Swiss-managed and foreign-owned Monrovia Breweries implemented a similar set of staff reforms in the wake of the First War, promoting Liberians to managerial roles for the first time.

> But while the war gave the Liberian elite the opportunity to manage, it also entailed grave personnel problems. Given the severity of the humanitarian crisis in Liberia, it was not just expatriate staff who evacuated. Large segments of the local labor force also fled the country or were killed, giving rise to high (and expensive) turnover rates.

The Liberian war also presented sundry opportunities for women to enter business, primarily as traders and retailers—the former often effectively taking over the contracts of foreign-owned transport companies. A manager at RITCO, an alcoholic spirits manufacturer, described how that firm managed to deliver their drinks across the combat frontier: "women come across, buy and carry it . . . when war fighting [*sic*], the women go search for food and other [things]." NICOM, a similar firm operating on the other side of the combat frontier from RITCO, also dealt almost exclusively with women traders, after

discovering that the large shipments made by their Lebanese transport contractor were too liable to interception on the roads. As a manager at Monrovia Breweries explained:

> [A]t the time really aside from sexual harassment and what have you, they [the soldiers] were not really troubling the women as much as they were troubling the men. So the women were free to travel around, [more so] than the men. So most of the business was done by the women. That's why today we even have more women doing business than before the war.

Finally, it is interesting (if inconclusive) to note the success of local firms in entering the alcoholic beverages market. The war spawned a host of mid-sized local alcoholic spirits firms that have grown as much as 500 percent since the start of the Second War. These are now in heavy competition with one another, whereas prior to the war, there was really only one major player. Meanwhile, foreign-owned Monrovia Breweries was still only operating at 50 percent capacity five years after the termination of hostilities (down from 89 percent capacity before the Second War). One possible interpretation is that the mid-sized local firms took advantage of the opportunity to erode Monrovia Breweries' market share. Such an interpretation would broaden the implications of the localization argument from merely staff sourcing at the microlevel to market composition.

4.5.4 *Knowledge Accumulation*

Bruton (1998) argues that one of the principal downfalls of many countries' SLI policies was their lack of emphasis on learning and knowledge accumulation. This resonates with Amsden (2007, 2001), who argues that firm-level know-how is a prerequisite to sustained industrial growth, and that therefore national governments that have nurtured knowledge accumulation among local firms are the ones that currently boast the most successful exports and the highest capital/labor ratios in the developing world.

While massively destructive of physical and human capital, the Liberian war also kept out most foreign firms and reduced imports, as explained above. This had two principal effects that spurred knowledge accumulation in mid-size firms, even as it wreaked havoc on knowledge accumulation in society at large. The first effect was that these firms, in diffusing their supply chains, also had to learn more about how to process raw materials (e.g. the cola berries in the case of NICOM, or the raw timber in the case of LISWINCO). Furthermore, in going further afield to source inputs that had previously come directly from the Freeport, businesses often learned of new techniques and products that they could then put to use at home. For instance, a RITCO manager began making trips to Côte d'Ivoire and Ghana to source his ethanol. While there, he

discovered new flavor combinations that his Ivorian and Ghanaian counterparts had pioneered with great success in their own markets. Thus, even as RITCO was scaling back production during the war years, it was actually broadening its product line from 7 to 14 varieties. Another RITCO manager partly credits his company's tremendous five-fold increase in output since before the Second War to these changes catalyzed by the war.

The second, more important, way that the war encouraged knowledge accumulation was through technical necessity. Whereas previously, firms might easily replace broken equipment with new, imported parts and machinery, the war heightened the risk that expensive equipment would be intercepted en route. Depending on their resources, companies generally used one (or, more often, a combination) of two strategies: (1) simplification of technical processes and (2) in-house verticalization of maintenance and repair functionality.[10]

Whilst the larger, foreign-owned firms such as USTC, CEMENCO, and Monrovia Breweries already had large repair shops, they grew still larger, and rarely needed recourse to the first strategy. Smaller, local firms integrated machinists and technical staff into their maintenance staff, but also simplified processes. RITCO and NICOM both acquired the in-house capacity to fix most technical problems associated with bottling machines and generators (strategy 2). For those devices prone to breakdowns, like the capping machines, staff engineers and machinists manufactured their own manually operated alternatives as contingency measures (strategy 1). Subsequent to the war, easy access to foreign imports has made replacing broken machinery much cheaper once again (though both firms still keep the manual machines concocted by their engineers). Consequently, these firms have started to deverticalize, spinning off a couple of local machinist businesses in the process.

4.5.5 *SLI Mimicry in Summary*

Of the three independent variables I attempted to maximize in the research design, the most important in terms of spurring these SLI-like outcomes seemed to be the supply chain structure (i.e. whether supplies were mainly imported or locally sourced) and local ownership, in descending order of importance. The location of the business (proxying for exposure to violence

[10] Verticalization of firm function is not uncommon in countries with weak institutional frameworks. For instance, Leff (1987) and Khanna (2000) both argue that giant diversified business groups in late-industrializing countries (e.g. chaebols in South Korea) arose in order to internalize many of the institutional functions, such as contract enforcement and property security, normally performed by the state in developed countries. Such arrangements were especially appropriate between industries with strong backward and forward linkages with one another.

Table 4.2 Pair-wise correlations of firm and SLI characteristics

	Location	Local inputs	Local ownership	Import tariffs	Import substitution	Staff localization	Knowledge accumulation
Location	1.000	0.200 (0.533)	0.527 (0.078)	0.313 (0.349)	0.428 (0.190)	−0.200 (0.606)	−0.192 (0.572)
Local inputs		1.000	0.683 (0.014)	−0.671 (0.024)	0.624 (0.040)	−1.000 (0.000)	−0.810 (0.003)
Local ownership			1.000	−0.418 (0.200)	0.607 (0.048)	−0.791 (0.011)	−0.449 (0.166)

Cell entries are Pearson's correlation coefficients (*r*) and (statistical significance) (*p*).

at its production site) did not seem to play a large role. To refine this intuition, I created a table of all the firms; their regional, supply chain, and ownership characteristics (as polychotomous or dichotomous variables); and the answers (as dichotomous variables) to the four basic questions, corresponding to the four studied attributes of SLI. A pair-wise correlation matrix is presented in Table 4.2.

While by no means definitive,[11] Table 4.2 is suggestive of certain trends. For one, none of the firm attributes (location, local inputs, local ownership) were significantly correlated to one another with the exception of a positive relationship between local inputs and local ownership. This may suggest that local owners are more connected to local supply chains through social networks, though it could equally suggest that locals tend to own smaller, artisanal enterprises that do not require foreign inputs. Furthermore, location (and ostensibly exposure to violence) did not significantly affect SLI-type trends.

In terms of the effects of supply chain structure, locally sourcing firms were significantly less likely to report heightened prices in inputs mimicking tariffs. The interviews suggest that this is due to the fact that foreign goods came through easily targetable point-sources (e.g. the port), were generally high value, and were subject to war insurance. Locally sourcing firms were also significantly more likely to use recourse to import substitution when the effective prices of foreign goods rose. And while they were no more or less likely to localize staff (perhaps because they tend to employ mostly Liberians already), they were significantly *less* likely to have developed significant in-house technical capacity than foreign-owned firms. This may or may not be related to the ability of foreign owners to pull knowledge-intensive parts of

[11] It cannot be emphasized enough that the strength of this chapter resides not in the sample size, which is quite small and conditions all of the following suggestions, but in the richness of the interviews themselves.

their supply chain which usually reside in their home country into Liberia. This, then, would constitute a curious case of reverse "brain drain."

The effects of local ownership mimic those of local sourcing, with two intuitively understandable exceptions. First, local ownership is not significantly associated with felt "import tariffs." In fact, nothing in the interviews suggests that it would be. Second, locally owned businesses were significantly more likely to localize inputs during the war. Again, this may (or may not) be due to the fact that local owners are more embedded in the social web. It may also be due to the possibility that foreign-owned firms could more easily afford capital-intensive security measures, such as radio communications, while locally owned firms relied more heavily on local staff networks who in turn had access to local markets.

4.6 Where the Comparison Breaks Down

The patterns described above reflect the war's impact on the Liberian economy in particular circumstances that did not hold for all businesses at all times. By and large, the effects of the war may have exhibited some resemblances to those of SLI policies among production firms that (1) were mid-sized, (2) had flexible supply chains (i.e. could switch to local sourcing), and (3) supplied inelastic goods. If any of these criteria went unmet, the war's effects ranged from the depressing (as in the case of CEMENCO, a large firm with an inflexible supply chain supplying an inelastic good) to the calamitous (as in the case of Parker Paints, a mid-sized firm with an inflexible supply chain making an elastic good).

Predation at the Freeport may have mimicked import tariffs and served as disincentive to importing, but sourcing locally also grew more expensive during the war—oftentimes more so than importing while the Freeport was still free from attack. Furthermore, occasional rebel control of the main port or airport is not necessarily the norm in civil war. While Sierra Leone experienced a similar situation in its port capital, Freetown, the combat frontier in Côte d'Ivoire's first civil war (2002–07) never came close to the main port city of Abidjan. The principle that concentrated streams of goods will generally be highly attractive targets, whether in provenance from a port, airport, highway, etc., is an obvious one. However, this applies to intra-country shipments just as much to imports. Moreover, as mentioned above, mimicked import tariffs did not distinguish between imported inputs and fixed capital, nor between imports used for domestic production and those used for export—both critical distinctions in SLI policies.

Local content may have risen in cases where local raw materials could substitute for scarce imports, but predation also hollowed out intermediary

industries. Intermediary products could not be easily and immediately dispersed upon manufacture. Rather, they were destined as specialized inputs for a finite number of other firms, and as such were more easily predated. The case of the timber mills' shutting down is illustrative. Imports may have actually have risen as a proportion of total product inputs, then, where local intermediate industries went out of business and raw materials could not suffice.

The caveats relating to staff localization and knowledge accumulation have already been mentioned. First, while it is true that Liberians and Liberian-owned businesses played a much larger role in the economy proportionally to expatriates and foreign-owned firms than in prewar years, the formal Liberian economy also shrank by 87 percent from 1980 to 2003. Thus, while Liberian interests may have been proportionately better represented, their absolute numbers diminished. Second and similarly, while the war may have catalyzed local knowledge accumulation in a few islands of industry, it ravaged knowledge accumulation in society at large.

4.7 A Case for Postconflict Protectionism

Calling attention to similarities between the effects of SLI and civil war on the private sector is not the same as asking why such similarities exist. After all, SLI policies were intentional and goal-oriented, while the war-driven adaptations were survival necessities. This chapter's knowledge-accumulation claim in particular suggests that war might, in a not unambiguous way, help to establish the knowledge foundations of a domestically integrated industrial economy. Such a suggestion clearly runs counter to mainstream conflict economics, which has generally held that while well-funded conflicts between developed countries may spur technological innovation, the possibility for technological breakthroughs benefiting (much less arising in) the private sector is remote in the low-tech civil wars of today's poor countries (Humphreys, 2003a).

A further question this chapter raises is: *If* war indeed galvanizes knowledge accumulation in production firms of Less Developed Countries (where production firms tend not to add tremendous value to exports or imports[12]), and *if* civil war is the logical result of few, highly concentrated value streams in the country (e.g. ports and mines), then to what extent does large-scale predation (civil war, *in extremis*) represent a kind of "autoimmune" response on the part of the economy to protect itself from international trade and establish more knowledge-intensive domestic industry? Answering such a question would

[12] Many production firms simply assemble prefabricated imports after the fashion of a constructor set or a kit—an outsourced form of Li and Polenske's (2004) "dispersal economies."

require establishing an "emergent logic" governing, through organizational and institutional mechanisms, the balance of predation and production in an economy. It is far beyond the scope of the present chapter, but fits with the logic of trade network dispersal describe in the previous chapter.

This chapter may, however, politicize the work of postconflict economic development in ways not previously seen. Despite some disagreement over the appropriate level of state involvement in reconstruction,[13] much of the postconflict economic policy literature is prescriptive rather than analytic, and more intended to generate consensus around issues than to problematize them.[14] This trend is in contrast to the longstanding and broad-ranging debate over the role of the state in late industrialization.

The postconflict literature often puts forward strategies for rapid economic growth to head off possible conflict relapse (Collier, 2007). These include attracting private investment (largely FDI), leveraging private sector investment for public infrastructure, and boosting export earnings (for war-torn countries, read: selling natural resources) (see e.g. Bray, 2005 and MacDonald, 2006). It rarely, however, focuses on local firm ownership or production capacity (a recent improvement on this status quo is found in Goldberg et al., 2014), despite long-standing recognition in theoretical conflict economics of the production sector as the antithetical counterpart to the appropriative economy.[15] In fact, a description of the Third World's idolization of FDI during the post-SLI debt crisis of the 1980s rings as true as it does for cash-strapped postconflict countries today:

> But indebted Third World enterprises were in desperate need of capital, and this made foreign direct investment look good . . . [But u]nless a country has its own nationally owned firms, it can't "globalize" in the form of outward foreign investment. If only foreign firms exist in a developing country, the overseas investments of these firms can't redound to the developing country. (Alice Amsden, 2007, ch. 8, pt. 4)

[13] Not to mention international involvement. Weinstein's (2005) provocative working paper on autonomous recovery, for example, suggests that UN interventions are typically associated with conflict relapses within a decade, and that "giving war a chance" (in the words of Luttwak, 1999) may ultimately lead to more stable, "self-enforcing" constitutions than enforcing an artificial peace. Leaving aside problems of small sample size, though, such an association might be explained by reverse causality: the UN Security Council may only intervene in thorny situations that are more likely to relapse into conflict.

[14] Notable exceptions include the fine-grained arguments by Paris (2004) and Paris and Sisk (2009), who note that peacebuilding projects have increasingly morphed into statebuilding projects. The elision is possibly unfortunate insofar as liberal statebuilding projects often insist on economic liberalization and democratization which, in tandem, may not be compatible with national sovereignty and self-determination (Rodrik, 2011), especially in post-conflict countries (McDougal, 2013).

[15] See, for instance, Caruso (2008) and Hirshleifer (1994). As noted in Chapter 2, Caruso argues that investments in industrial production (rather than agricultural production, raw materials extraction, or even services) are particularly effective at reducing violence.

Another issue raised by the comparison of war's effects and SLI policies is that of firm competitiveness. SLI policies were seen by the West as producing firms unable to hold their ground when faced with the "level playing field" of free and fair global competition. As many have argued, however, SLI policies have worked to produce export-quality firms when they are gradually phased out over time, allowing international competition to galvanize maturing local industries, while also removing the export stumbling block of rigged exchange rates. Examples of such SLI phase-outs include China, India, Korea, and Brazil (Amsden, 2001, Davis, 2004).

In the postconflict context, it behooves policymakers to appreciate the SLI comparison and consider that a rapid and wholesale "investment-friendly" campaign may have similarly disastrous results to rapid trade and market liberalization in state-led industrializers. Even countries that have never before adopted SLI policy frameworks might wish to consider a probationary period during which the state protects its local businesses and allows them to recover from their injuries, consolidate their possible gains (in market share, etc.), and learn to contend with international competition. Furthermore, given the plethora of small suppliers that sprang up during the Liberian War, such a grace period might allow the market to consolidate via internal competition, thereby reaping economies of scale, as well as to formalize in cases where they have gone "under the radar." Such a policy framework would, however, require government resources that are too often nonexistent in postwar countries, for example to offer concessionary business expansion loans through development banks.

It sounds strange to say that firms in a war-torn country may have benefited from protection, considering how vulnerable they were to wanton predation. War-affected governments are often powerless to provide even minimal public goods such as security and contract enforcement, much less functional utilities and transportation infrastructure. For those firms lucky and adaptable enough to survive, though, a counter-intuitive form of protection is exactly what the war implied. However, just as the protection patterns described above are not applicable to the entire Liberian private sector (much less to all other postconflict economies), so too should these policy recommendations be seen not as rival, but as additive to the many other considerations that constitute a postconflict policy framework.

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References

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *The Quarterly Journal of Economics*, 117(4): 1231–94.

Aghedo, Iro and Oarhe Osumah. 2012. "The Boko Haram Uprising: How Should Nigeria Respond?" *Third World Quarterly*, 33(5): 853–69.

Agostino, G., J. Paul Dunne, and Luca Pieroni. 2012. "Assessing the Effects of Military Expenditures on Growth." In M. R. Garfinkel and S. Skaperdas, *The Oxford Handbook of the Economics of Peace and Conflict*. New York: Oxford University Press.

Amsden, Alice. 2001. *The Rise of the Rest: Challenges to the West from Late-Industrializing Economies*. Oxford: Oxford University Press.

Amsden, Alice. 2007. *Escape from Empire: The Developing World's Journey through Heaven and Hell*. Cambridge: MIT Press.

Baer, Werner. 1972. "Import Substitution and Industrialization in Latin America: Experiences and Interpretations." *Latin American Review*, 7(1): 95–122.

Bernstein, William J. 2008. *A Splendid Exchange: How Trade Shaped the World*. New York: Atlantic Monthly Press.

Brauer, Jurgen and J. Paul Dunne. 2012. *Peace Economics: A Macroeconomic Primer for Violence-Afflicted States* Washington, DC: United States Institute of Peace.

Bray, J. 2005. *International Companies and Post-Conflict Reconstruction: Cross-Sectoral Comparisons*. Washington, DC: World Bank.

Brück, Tilman, Olaf J. de Groot, and Carlos Bozzoli. 2012. "How Many Bucks in a Bang: On the Estimation of the Economic Costs of Conflict." In M. R. Garfinkel and S. Skaperdas, *The Oxford Handbook of the Economics of Peace and Conflict*. Oxford: Oxford University Press.

Bruton, Henry J. 1998. "A Reconsideration of Import Substitution." *Journal of Economic Literature*, 36: 903–36.

Caruso, Raul. 2008. "A Model of Conflict, Appropriation and Production in a Two-Sector Economy." *Paper presented at the AEA/ASSA Conference*. New Orleans.

Chang, Ha-Joon. 2002. *Kicking Away the Ladder: Development Strategy in Historical Perspective*. London: Anthem Press.

Collier, Paul. 1999. "On the Economic Consequences of Civil War." *Oxford Economic Papers*, 51: 168–83.

Collier, Paul. 2007. *Post-Conflict Recovery: How Should Policies Be Distinctive?* Oxford: Centre for the Study of African Economies.

Davis, Diane E. 2004. *Discipline and Development: Middle Classes and Prosperity in East Asia and Latin America*. New York: Cambridge University Press.

Dunne, J. Paul. 2011. "Military Keynesianism: An Assessment." University of West of England.

Dunne, J. Paul, Luca Pieroni, and Giorgio d'Agostino. 2013. "Military Spending and the Falling Rate of Profit in the US." *International Conference on Economics and Security*. Stockholm: Stockholm International Peace Research Institute (SIPRI).

Dunne, J. Paul. 1985. "Using Input-Output Models to Assess the Employment Effects of Military Expenditure: A Comparative Assessment." *IIASA Input Output Task Force Meeting, 6th*. Warshaw: International Institute for Applied Systems Analysis.

Fearon, James and David Laitin. 2003. "Ethnicity, Insurgency and Civil War." *American Political Science Review*, 97: 75–90.

Frontier Economics. 2010. "The Cost of Future Conflict in Sudan." London: Frontier Economics.

Goldberg, Michael, Kwang Wook Kim, and Maria Ariano. 2014. "How Firms Cope with Crime and Violence: Experiences from around the World." *Directions in Development*. Washington, DC: World Bank.

Hazen, Jennifer M. and Jonas Horner. 2007. "Small Arms, Armed Violence, and Insecurity in Nigeria: The Niger Delta in Perspective." *Occasional Papers*. Geneva: Small Arms Survey.

Hegre, Havard, Gudrun Østby, and Clionadh Raleigh. 2009. "Poverty and Civil War Events: A Disaggregated Study of Liberia." *Journal of Conflict Resolution*, 53(4): 598–623.

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

Hess, Gregory. 2003. "The Economic Welfare Cost of Conflict: An Empirical Assessment." *CESifo Working Papers*. Munich: Center for Economic Studies and Ifo Institute for Economic Research.

Hirshleifer, Jack. 1994. "The Dark Side of the Force." *Economic Inquiry*, 32: 1–10.

Humphreys, Macartan. 2003a. "Economics and Violent Conflict." *Harvard Program on Humanitarian Policy and Conflict Research*.

Humphreys, Macartan. 2003b. "Economics and Violent Conflict." Cambridge, MA: Harvard Program on Humanitarian Policy and Conflict Research.

Hunt, J. Timothy. 2006. *The Politics of Bones: Dr. Owens Wiwa and the Struggle for Nigeria's Oil*. Toronto: McClelland & Stewart.

Ibáñez, Ana María and Andrés Moya. 2006. "¿Cómo El Desplazamiento Forzado Deteriora El Bienestar De Los Hogares Desplazados?: Análisis Y Determinantes Del Bienestar En Los Municipios De Recepción." U. d. l. Andes, *Documentos CEDE*.

IEP. 2013. "Global Peace Index 2013: Measuring the State of Global Peace." Sydney and New York: Institute for Economics and Peace.

Imai, Kosuke and Jeremy M. Weinstein. 2000. "Measuring the Economic Impact of Civil War." Cambridge, MA: Harvard Center for International Development.

IMF. 2003. Country Report: Liberia. (03/274). Washington, DC: International Monetary Fund.

International Action Network on Small Arms (IANSA). 2007. "Africa's Missing Billions: International Arms Flows and the Cost of Conflict." *Briefing Papers*. OXFAM International & Saferworld.

Kabamba, Patience. 2008. "Alternative Ethnique a L'état Post-Colonial: Cas Des Nande De Butembo Et Des Luba De Mbuji-Mayi En Republique Democratique Du Congo." *Canadian Journal of African Studies*, 42(1): 129–63.

Kalyvas, Stathis. 2006. *The Logic of Violence in Civil War*. New York: Cambridge University Press.

Khanna, T. 2000. "Business Groups and Social Welfare in Developing Markets: Existing Evidence and Unanswered Questions." *European Economic Review*, 44(4): 867–91.
Kirkpatrick, Colin. 1987. "Trade Policy and Industrialization in Ldcs." In N. Gemmell, *Surveys in Development Economics*. Oxford: Blackwell, 71–2.
Krugman, Paul. 1991. "Increasing Returns and Economic Geography." *Journal of Political Economy*, 99(3): 483–99.
Kumar, Krishna. 2001. *Women and Civil War: Impact, Organizations and Action*. London: Lynne Rienner.
Leeson, Peter T. 2008. "Better Off Stateless: Somalia before and after Government Collapse." *Journal of Comparative Economics*, 35(4): 689–710.
Leff, N. H. 1987. "Industrial Organization and Entrepreneurship in the Developing Countries." *Economic Development and Cultural Change*, 26(4): 611–75.
Lester, Richard K. and Michael J. Piore. 2004. *Innovation: The Missing Dimension*. Cambridge, MA: Harvard University Press.
Li, Yu and Karen R. Polenske. 2004. "Measuring Dispersal Economies." *Entrepreneurship, Spatial Industrial Clusters and Inter-Firm Networks*. Trollhätten, Sweden: Universities of Trollhätten and Udevalla, 625–33.
Lopez, Humberto and Quentin T. Wodon. 2005. "The Economic Impact of Armed Conflict in Rwanda." *Journal of African Economies*, 14(4): 586–602.
Luttwak, Edward. 1999. "Give War a Chance." *Foreign Affairs*, 78(4): 36–44.
McDougal, Topher L. 2009. "The Liberian State of Emergency: What Do Civil War and State-Led Industrialization Have in Common?" *Peace Economics, Peace Science and Public Policy*, 14(3).
McDougal, Topher. 2013. "The Trilemma of Promoting Economic Justice at War's End." In D. Sharp, *Justice and Economic Violence in Transition*. New York: Springer, 51–77.
McDougal, Topher L. and Raul Caruso. 2016. "Is There a Relationship between Wartime Violence and Postwar Agricultural Development Outcomes? The Case of Concessions and Community Grants in Mozambique." *Political Geography*, 50: 20–32.
McDougal, Topher L., Talia Hagerty, Lisa Inks, Claire-Lorentz Ugo-Ike, Caitriona Dowd, Stone Conroy, and Daniel Ogabiela. 2015. "The Effect of Farmer-Pastoralist Violence on Income: New Survey Evidence from Nigeria's Middle Belt States." *Economics of Peace and Security Journal*, 10(1): 66–77.
Ministry of Finance. 2007. "Commerce Report Tables." Monrovia: Republic of Liberia.
Mott MacDonald. 2006. "Post-Conflict Reconstruction and Private Sector Development." Eschborn.: GTZ.
Nenova, Tatiana. 2004. *Private Sector Response to the Absence of Government Institutions in Somalia*. Washington, DC: World Bank.
Nenova, Tatiana and Tim Harford. 2004. "Anarchy and Invention: How Does Somalia's Private Sector Cope without Government?" Washington, DC: World Bank.
Nurkse, R. 1953. *Problems of Capital Formation in Underdeveloped Countries*. Oxford: Basil Blackwell.
Obi, Cyril I. 2010. "Oil Extraction, Dispossession, Resistance, and Conflict in Nigeria's Oil-Rich Niger Delta." *Canadian Journal of Development Studies*, 30(1–2): 219–36.

Onuoha, Freedom C. 2010. "The Islamist Challenge: Nigeria's Boko Haram Crisis Explained." *African Security Review*, 19(2): 54–67.

Paris, Roland. 2004. *At War's End: Building Peace after Civil Conflict*. New York: Cambridge University Press.

Paris, Roland and Timothy D. Sisk. 2009. "Introduction: Understanding the Contradiction of Postwar Statebuilding." In R. Paris and T. D. Sisk, *The Dilemmas of Statebuilding: Confronting the Contradictions of Postwar Peace Operations*. New York: Routledge.

Prebisch, Raul. 1959. "Commercial Policy in the Underdeveloped Countries." *American Economic Review*, 49: 257–69.

Prebisch, Raul. 1950. *The Economic Development of Latin America and Its Principal Problems*. New York: United Nations.

Ra, Sungsup and Bipul Singh. 2005. "Measuring the Economic Costs of Conflict." *Nepal Resident Mission Working Papers*. Manila: Asian Development Bank.

Reno, William. 1997. "African Weak States and Commercial Alliances." *African Affairs*, 96: 165–85.

Reno, William. 2003. "Political Networks in a Failing State: The Roots and Future of Violent Conflict in Sierra Leone." *Internationale Politik und Gesellschaft*, 2: 44–66.

Rodrik, Dani. 2011. *The Globalization Paradox: Democracy and the Future of the World Economy*. New York: W.W. Norton & Co.

Rodrik, Dani. 1997. *Has Globalization Gone Too Far?* Washington, DC: Institute for International Economics.

Romer, Paul M. 1994. "The Origins of Endogenous Growth." *Journal of Economic Perspectives*, 8(1): 3–22.

Schumpeter, J. 1934. *The Theory of Economic Development*. Cambridge: Harvard University Press.

Serneels, Pieter and Marijke Verpoorten. 2012. "The Impact of Armed Conflict on Economic Performance: Evidence from Rwanda." *CSAE Working Papers*. Oxford: Center for the Study of African Economies.

Shortland, Anja. 2011. "The Puntland Pirate Economy." *Jan Tinbergen European Peace Science Conference*. Amsterdam, Netherlands: University of Amsterdam.

Singer, Hans. 1950. "The Distribution of Gains between Investing and Borrowing Countries." *American Economic Review*, 40(2): 473–85.

Smith, Ron and J. Paul Dunne. 2015. "The Evolution of the Global Arms Industry," *19th International Conference on Economics and Security*. Grenoble.

Stiglitz, Joseph and Linda J. Bilmes. 2012. "Estimating the Costs of War: Methodological Issues, with Applications to Iraq and Afghanistan." M. R. Garfinkel and S. Skaperdas, *Estimating the Costs of War: Methodological Issues, with Applications to Iraq and Afghanistan*. New York: Oxford University Press.

Stiglitz, Joseph E. and Linda J. Bilmes. 2008. *The Three Trillion Dollar War: The True Cost of the Iraq Conflict*. New York: W. W. Norton & Company.

Varshney, Ashutosh. 2001. "Ethnic Conflict and Civil Society: India and Beyond." *World Politics*, 53(3): 362–98.

Veblen, Thorstein. 1922. *The Instinct of Workmanship: And the State of the Industrial Arts*. New York: B.W. Huebsch, Inc.

Verwimp, Philip and Tom Bundervoet. 2008. "Consumption Growth, Household Splits and Civil War." *Working Papers ECARES*. Brussels: U. L. d. Bruxelles.

Wallsten, Scott Jonathan. 2001. "An Empirical Test of Geographic Knowledge Spillovers Using Geographic Information Systems and Firm-Level Data." *Regional Science and Urban Economics*, 31(5): 571–99.

Watts, Michael. 2007. "Petro-Insurgency or Criminal Syndicate? Conflict and Violence in the Niger Delta." *Review of African Political Economy*, 34(114): 637–60.

Weinstein, Jeremy. 2005. "Autonomous Recovery and International Intervention in Comparative Perspective." Stanford: Stanford University Center for Global Development.

Williamson, Oliver E. 2000. "The New Institutional Economics: Taking Stock, Looking Ahead." *Journal of Economic Literature*, 38: 595–613.

5

Trade Network Splintering and Ethnic Homogenization in Liberia and Sierra Leone

5.1 Overview

During the Liberian Civil War, the large market of Red Light grew up on the outskirts of Monrovia. There, under the relative protection of international peacekeeping forces, rural–urban trade linked rural inhabitants with industrial production and imports, and provided Monrovians with increasingly rare fresh food. In violent conflict, civilians in both urban and rural areas depend to some extent on the function of trade networks for their welfare. In North Kivu in the Democratic Republic of Congo, for example, urban dwellers in Goma and other towns experienced frequent power outages under the National Congress for the Defense of the People in 2007 (known by its French acronym, CNDP). A brisk trade in charcoal expanded in response to demand for cooking fuel. Urban firms and rural agricultural enterprises depend on such rural–urban trade, as well.

This chapter then seeks to understand the ways in which trade network morphologies shift during a conflict. Chapter 3 was a qualitative study of firm adaptations to civil war in Liberia, describing a process of simultaneous supply chain outsourcing and verticalization of intermediary industry processing. The dynamic of spatial dispersal described therein both helps to explain why surviving production firms grow in technical capacity (as described in Chapter 4) even as the economy as a whole becomes less efficient. It also suggests that trade networks may splinter into multiple "capillaries" during conflict, radiating out to hard-to-reach hinterlands. This chapter examines the same phenomenon, not from the point of view of the firms, but from that of local residents who may become traders. By contrast to the previous chapter, it leverages a quantitative methodology to scrutinize the dispersal of production networks via a multiplication of petty traders during civil wars in Sierra Leone and Liberia.

First, it argues that violent events during the intertwined civil wars in Sierra Leone and Liberia tended to splinter production networks, such that areas near violent events would host more traders. Second, it argues that violent events also tended to have a localizing effect on the composition of traders. That is, while traders as a class are more likely to be cosmopolitan, traders in war become more homogenous with respect to the populations they serve. Third, it argues that traders remaining farther from their ethnic homelands—and, it is suggested, this likely means in larger cities—enjoy higher incomes that perhaps derive from monopsony and monopoly power vis-à-vis their coethnics. The overall picture this analysis paints is that of an economy that grows increasingly reliant upon social networks rather than markets, and characterized by a "disembedding" of trading networks even as they splinter. It implies that cities become hubs of activity for numerous overlapping, but ultimately separate, ethnic networks serving rural areas.

The rest of this chapter is arranged as follows. In Section 5.2, I describe the hypotheses and the theory from which they derive. (I explain the methods and technical details in Appendix C.) Section 5.3 reports the results of analyses predicting the trading profession; Section 5.4 reports those predicting distance from one's ethnic homeland; Section 5.5 reports those predicting traders' income. In Section 5.6, I discuss the implications of these results.

5.2 The Dispersal and Homogenization Hypotheses

The dispersal hypothesis suggests that a wartime incident's proximity, violence, and recentness will all affect the likelihood of a local resident becoming a trader. Specifically, it is posits that close strikes will cause trade networks to splinter, allowing traders to dodge the violence. Therefore, more recent events are hypothesized to be associated with *more* traders to serve affected areas, since the effects of the violence are presumed to fade over time. However, this begs another question: Are the new traders drawn from within or outside of local communities? I postulate that while members of a community affected by violence will generally be more focused on immediate survival needs than exporting their surplus, the inability of that community to completely provide for all its own needs internally—autarky, in economic terms—in combination with the generally decreased agricultural incomes, will drive many locals into the trading profession. I therefore expect to see trading decrease with distance to the event, and increase with violence intensity.

The reasoning behind the dispersal hypothesis can be explained by way of production network morphologies. In a non-conflict setting, a simple

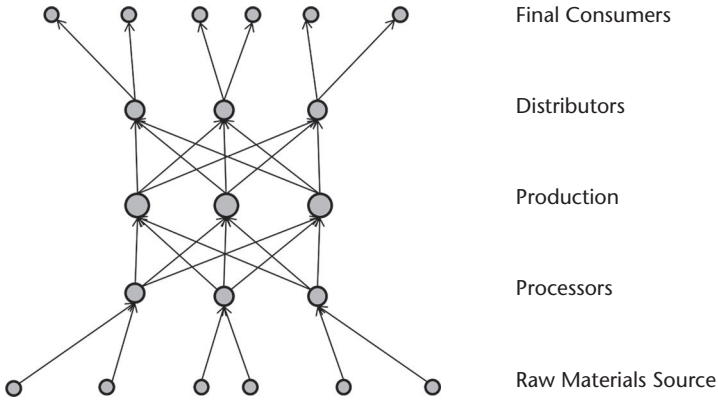

Figure 5.1 A generic production network in peacetime.

production network is characterized by the diagram in Figure 5.1.[1] Raw materials suppliers source to the nearest processor, which then ships to producers who need specific types of intermediary goods. For instance, in prewar Liberia, timber fellers would ship trees to saw mills, which would then make a variety of cuts, from the high value (planks and boards) to the less valuable (joists, short bits for furniture and, eventually, saw dust). These mills could then ship exactly what was needed by each industry (export lumber, particle board, furniture) and wastage was limited. The combat frontier cut off LISWINCO, a furniture manufacturer, from the mills (which subsequently went out of business), forcing the company to buy timber from petty loggers and process the wood themselves. Wood wastage was then partly mitigated by buying those logs that lent themselves to LISWINCO's products directly from the traders, as shown in Figure 5.2. One of the downsides of this situation for the firm was a drop in efficiency due to coordinating multiple sourcing streams. On the upside for the firm, they became adept at operating large saws to process their own timber.

On the distribution side, networks of traders came to have direct relationships with producers, rather than accessing them at rural distributions centers where the firms used to "break bulk" (as shown in Figure 5.3). In this sense, predation by rebel groups did not mimic transportation costs hikes, because the economies of scale in transportation were more than offset by diseconomies of scale associated with detection. For that reason, "dispersal economies" (Li and Polenske, 2004) applied to the trade routes, but not to dispersed production facilities in linked industries.

[1] A useful discussion of such supply chain morphologies was given by Jim Delaney (2010).

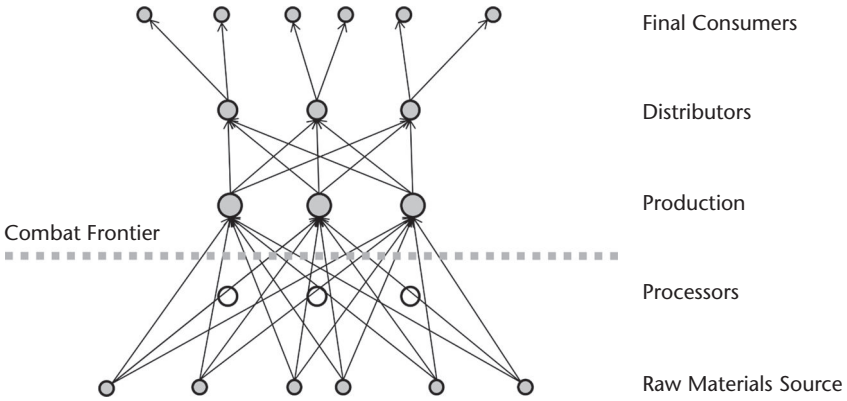

Figure 5.2 A production network with a combat frontier cutting the supply chain.

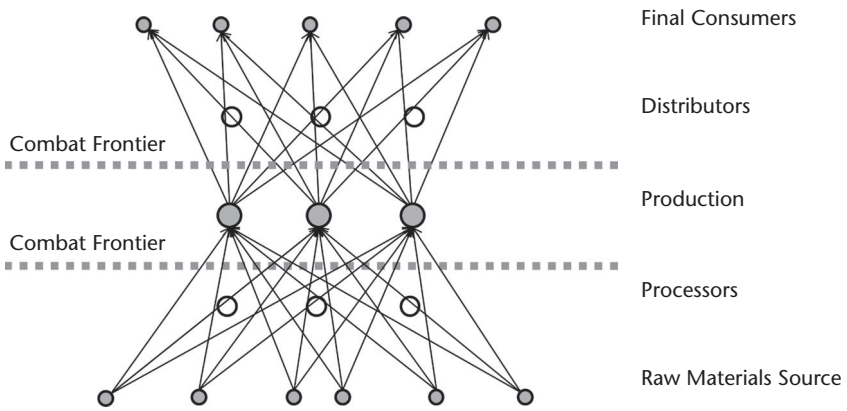

Figure 5.3 A production network with a combat frontier cutting the supply and distribution chains.

This trade route multiplication can be easily described with a simple model (see Appendix B), which demonstrates that as the number of processing facilities declines by 1, the number of trade networks rises by the number of production facilities. This multiplication of trade routes essentially represents a rise in inefficiency—another form of higher transportation costs in our original core–periphery model (Section 2.4).

The dispersal hypothesis may allow us to test whether violence causes an enlarged set of traders to serve affected communities, but it fails to get at the question of social networks. So I now introduce the ethnic homogenization hypothesis to address the relationship between the geographies of trade, conflict, and social structure. The ethnic homogenization hypothesis posits that, in the context of violence, traders are more likely to be drawn from the

same ethnic group as the affected community. Varshney (2001) notes, for instance, that violence tends to break down interethnic "bridging" social capital. Jha (2007) likewise describes how long-distance trade could enhance intergroup social ties. Accordingly, the homogenization hypothesis would test the converse, postulating that nearby violence will fragment the trading sector, homogenizing specific networks. Traders, as a generally cosmopolitan class, are hypothesized to reside farther from their ancestral homelands than non-traders, but nearby violence is also hypothesized to militate against such cosmopolitanism.

5.3 Predicting Trade as a Primary Occupation

Performing a quantitative empirical analysis on a GIS-augmented survey dataset (details of which are presented in Appendix C), I examined how the proximity, recentness, and severity of wartime clashes influenced the trade sector. Without the benefit of a comprehensive map of trade networks, I used the number of survey respondents listing "trader/retailer" as their primary occupation in any given location. The occupation data were collected in a cross-sectional cluster-sample labor and employment survey carried out by the International Rescue Committee, and which I helped to administer, in seven districts and counties of Sierra Leone and Liberia. Reliance on this survey data implicitly assumes that violence affected the way in which people earned a livelihood, and not the other way around.[2] The year of survey data collection—four years after the termination of hostilities in Sierra Leone, and two and a half after the termination of hostilities in Liberia—also implies that those who became traders during the civil wars would not instantaneously revert to whatever they had been doing beforehand; rather, their chosen occupations would be somehow "sticky."[3]

The results for the dispersal hypothesis test indicate that whether one is a trader or not is indeed associated with distance from the nearest violent

[2] For instance, a relative dearth of traders may have implied that the traders that did operate in a given area carried more lootable merchandise per person, and so made more attractive targets for the purveyors of violence.

[3] There are a number of distinct limitations faced by reliance on this data. For one, the IRC survey was not a comprehensive cluster survey of both countries. At best, it can be described as a cluster survey representative of certain war-affected districts and counties in the two countries—in Sierra Leone, the Western, Western Urban, Kono, and Kenema districts; in Liberia, Montserrado, Lofa, and Nimba counties. Second, the survey is cross-sectional and does not benefit from repeated observations to be able to make causal claims. The fact of *being* a trader now does not mean that one *became* a trader due to economic conditions during the war. In other words, no causality can be inferred, but only association ascertained. The causality in this case is implied more by the qualitative interviews with firm personnel managing supply and distribution chains presented in Chapter 4.

wartime event (see Table C.2). Even neutralizing the effects of many factors that might vary from district to district (or from county to county, in the case of Liberia), proximity to violence goes hand in hand with a higher likelihood for adopting trade as one's primary occupation. Every one kilometer of distance from the nearest violent wartime event, the likelihood of being a trader is less by around 1.8 percent.

The results also indicate that the recentness of the nearest attack tends, as predicted, to be relevant to becoming a trader: the more recent the most proximate violent event, the more likely one is to be a trader. The tests failed to turn up any statistically significant correlation between being a trader and the severity of the nearest violent event (the number of casualties associated with the event was used as an indicator of the latter). Nevertheless, the association was, in both tests, positive, indicating that more severe events *may* be associated with greater likelihood of being a trader.[4]

5.4 Predicting Distance from Ethnic Homeland

Next tested is the ethnic homogenization hypothesis—the idea that violence will produce traders who were more likely to come from the same ethnic group as the local population. I use the distance of the respondent from his or her so-called "ethnic homeland" as the outcome, whilst the primary predictors are interactions between the trade profession and the three measures of the nearest violent event (distance, recentness, and severity). The interaction terms are intended to capture the degree to which nearby violence acts differently on those in the trading profession relative to other professions. The hypothesis would suggest that, whilst violent events are usually likely to displace people, thereby increasing the distance from their ethnic homelands, traders will have an economic incentive to stay closer to home, serving that population.

Indeed, the results generally corroborate this logic (see Table C.3). Great distances from the nearest violent event are significantly associated with smaller distances from one's ethnic homeland in all models. Likewise, the recentness and severity of those violent events is associated significantly with greater distances from one's ethnic homeland. Moreover, traders are generally found farther from their ethnic homelands—as we might expect from an inherently cosmopolitan profession.

[4] Testing all three of these predictors together, or indeed including other controls, is not desirable in this situation due to the low numbers of "successes" in the outcome variable (in this case, traders, which number just 25). This consideration will only permit one predictor at a time.

However, the interaction terms—and particularly that relating the trading profession to the severity of violence—provide nuance to this story. For traders as a class, greater violence seems to be associated with diminished distances from their respective ethnic homelands. In fact, whilst severity tends to push non-traders farther away, it tends to pull traders in. And the magnitude of this pull on traders is actually greater than the magnitude of the general push. This may be evidence of ethnic stratification taking place in the trade network—along the lines described in other studies of economies in the context of conflict and weak institutions (see e.g. Kabamba, 2008, Mubarak, 1997, Nenova and Harford, 2004)—where ethnic, clan and other in-group social cleavages grow in saliency as they are used as a guarantor of fair play, contract and property rights, and predictability. To borrow Rodgers' (2004) term, ethnic trade networks may become "disembedded" near violence, increasingly serving only coethnics.

5.5 Predicting Traders' Income

The last empirical analysis of this chapter involves predicting the income of traders. My intention in so doing is to discover the microeconomic effect of violence that selected for homoethnic—or ethnically homogeneous—networks. Does it generally produce higher or lower incomes? Either possibility is theoretically conceivable.

On the one hand, we might hypothesize that, to the extent that one ethnicity predominates in the trading profession, its members may enjoy an efficient, cosmopolitan network that gives them an advantage over more parochial networks. If this narrative is accurate, it is possible that distance from one's ethnic homeland will generally be associated with higher incomes. For instance, the Mandingo people of West Africa have a long history of settling along trade routes linking the coast to inland agricultural production areas and trans-Saharan trade capitals such as Djenné and Timbuktu. In Sierra Leone and Liberia, this Mandingo historical merchant livelihood persists. And while in recent years Lebanese have come to dominate domestic trade networks, anecdotal evidence collected through semi-structured interviews suggested that during wartime, businesses moved away from large-scale Lebanese-dominated distribution toward local petty traders. Moreover, heteroethnic traders—those who do not share an ethnicity with the populations they serve—might be less constrained by social convention to make "fair" deals with locals, and instead exploit their monopoly position to the fullest possible degree.

On the other hand, it's possible that traders enjoy levels of access to their coethnics that they do not with other populations. If this "ethnic access" is indeed the case, perhaps buyers and sellers trust coethnics more to be fair in

one-off transactions. Perhaps coethnic transactions tend not to be one-offs in the first place, but iterative arrangements that ensure fair play over time. Or perhaps traders attempting to access violence-affected areas are more likely to know the "small small" routes to avoid interception at combat frontier checkpoints, as intimated in previous chapters.

Before delving into the results, it is worthwhile considering how violence is associated with incomes in the absence of considerations of ethnicity. Table C.4 presents how our three predictors—distance, recentness, and severity of violence—are related to traders' and non-traders' self-reported weekly income. First off, it is interesting to note distance from violence is *negatively* associated with income of non-traders. This rather paradoxical result is likely best explained as a case of reverse causality. In other words, those with the highest incomes in 2006 may live in urban areas that boast higher incomes. Those same urban areas—partly because of the high incomes they hosted—became targets of violence during the war.[5] As the causal arrow from trade networks to violence is dealt with in Part III of this book, I will leave that thought there.

Second, the plot thickens when considering that distance from violence has no statistical relationship with the present incomes of traders. This would appear to be evidence that traders have an unusual profession: its fortunes may flow in eddies, sometimes counter or transversally to the mainstream of the economy. If we accept the idea that local income attracts violence, we might also guess that traders were able to relocate to minimize security risks—a guess that is supported by interview evidence regarding both the nature of their business as a moveable feast, as well as the information-sharing that occurred within trade networks.

The relationship between a trader's distance from her or his ethnic homeland and income is far from straightforward, as Table C.5 demonstrates. Model 4 is most complete, and implies a number of overlapping trends in play. Incomes are generally higher among those who are farther from their ethnic homeland. Perhaps this is because urbanizing generally both brings higher incomes and requires leaving one's ethnic homeland. There may also be selection bias at work, to the extent that more capable workers are more likely to find work elsewhere, as well as earn more, anyway. But here is one of those eddies of the trading profession: traders seem to earn more as a rule when they are close to their ethnic homelands—possibly indicative of the "ethnic access" hypothesis described above.

[5] Testing this reverse causality statistically, I found it to be the case, though I had no appropriate instrumental variable, both relevant and exogenous, with which to control for the endogeneity. In Table C.4, the most controlled of the models (Model 4) finds the more intuitive result: large distances to violence are associated with higher incomes, especially among traders.

Further quirks of the trading profession crop up when examining the interrelationships between violence, trade, and ethnicity. Whilst most other professions tend to see higher incomes from staying closer to home in the face of violence, traders experience the reverse: as violence approaches, their incomes respond positively to leaving their ethnic homeland. The same countercurrent phenomenon is seen in the case of the recentness of violence. In the face of violence, incomes tend to be low when the respondent is far from her or his ethnic homeland. But just the opposite is true of traders: as violence rises, traders do better to be far from their homelands. And whilst the severity of violent events seems to suppress incomes in general, its effect on traders is minimal.

5.6 Radial Trade, Ethnic Homogenization, and Monopoly

The data paint a picture that is rather contradictory on its face, but ultimately logical. On the one hand, violence seems to be spawning high numbers of traders near to their ethnic homelands. On the other hand, under conditions of violence traders' incomes rise the farther they are from those ethnic homelands. These two distinct observations make sense if we imagine a coethnic network of traders fanning out radially from primate to secondary cities, and from secondary cities to towns and villages. Traders located in the capital city enjoy monopoly and monopsony power vis-à-vis their more numerous coethnic partners in secondary cities and towns.

The splintering of trade networks suggested here may also have served to segment the rural market, thereby establishing traders with special access to certain regions as gatekeepers to rural distribution. A number of distribution managers in Monrovia-based firms, for instance, described themselves as being at the mercy of the traders when setting their prices during the war—they simply didn't know what sort of profit margins traders were making, and were therefore not in a strong bargaining position to raise prices. They were eager following the war to revert to bulk shipping as soon as possible. The wartime transformation of more open trade networks into more closed social networks seems then to have militated against the monopoly and monopsony power that urban firms tend to enjoy over rural areas in many less-developed countries (Fafchamps, 2001).

Finally, it is worth noting that the qualities of a successful trader, as described by firm managers, also included their ability to communicate rebel intentions to urban businesses, warning them of impending strikes. This often implied that they either had ties with the rebel movement, good interethnic relations with other urban-based traders who had access to such information,

or both. Traders then truly did represent the membrane not only between urban and rural economies, but also between rebels and their intended targets.

References

Delaney, Jim. 2010. "A Political Ecology of Price Fetishism: Raising Expectations and Falling Prices in Vietnam's Bamboo Sector." *The Gary Gaile Development Geography Preconference*. Chevy Chase, MD: American University/Association of American Geographers.

Fafchamps, Marcel. 2001. "Networks, Communities and Markets in Sub-Saharan Africa: Implications for Firm Growth and Investment." *Journal of African Economies*, 10: 109–42.

Jha, Saumitra. 2008. "Trade, Institutions and Religious Tolerance: Evidence from India." Stanford University Graduate School of Business Research Paper No. 2004. Available at SSRN: https://ssrn.com/abstract=948734 (accessed November 30, 2016).

Kabamba, Patience. 2008. "Alternative Ethnique a L'etat Post-Colonial: Cas Des Nande De Butembo Et Des Luba De Mbuji-Mayi En Republique Democratique Du Congo." *Canadian Journal of African Studies*, 42(1): 129–63.

Li, Yu and Karen R. Polenske. 2004. "Measuring Dispersal Economies." *Entrepreneurship, Spatial Industrial Clusters and Inter-Firm Networks*. Trollhätten, Sweden: Universities of Trollhätten and Udevalla, 625–33.

Mubarak, Jamil A. 1997. "The 'Hidden Hand' Behind the Resilience of the Stateless Economy of Somalia." *World Development*, 25: 2027–41.

Nenova, Tatiana and Tim Harford. 2004. *Anarchy and Invention: How Does Somalia's Private Sector Cope without Government?* Washington, DC: World Bank.

Rodgers, Dennis. 2004. "Disembedding the City: Crime, Insecurity, and Spatial Organisation in Managua, Nicaragua." *Environment and Urbanisation*, 16(2): 113–24.

Varshney, Ashutosh. 2001. "Ethnic Conflict and Civil Society: India and Beyond." *World Politics*, 53(3): 362–98.

Part III
Production Networks Act on Violent Actors

6

Multipolar Trade and Rural–Urban Violence in Maoist India

6.1 Trade or Invade

The rural–urban interface, I have claimed, characterizes many internal armed conflicts. Guillen's (1973) writings on the possibilities for Leninist takeovers of the urban-based state by the rural downtrodden in Latin America, long considered passé, seem to resonate with a very contemporary discontent in much of the rural Global South. Such discontent has manifested itself in a number of conflicts, whether they fall into the fuzzy categories—popularized by Ramsbotham et al. (2005)—of Ideological-Revolutionary (e.g. Maoist uprisings in Nepal and India), Factional-Economic (e.g. Liberia, Sierra Leone, Angola, Mozambique) or Identity-Secessionist (the former long-standing Tamil Tiger insurgency in Sri Lanka and South Sudan independence movement).

I have noted, though, that in some cases—for example, Monrovia, Freetown, Luanda, Maputo, Aleppo—cities are targeted, to use Daniel Esser's (2004) taxonomy, as economic "prey" and the combat frontier is thus hotly contested. In other cases—as in most of Maoist India—cities are important hubs of trade and even violence, but are not targeted by insurgents seeking administrative control. In the former cases, rebel groups operate more often as predators, employing violence indiscriminately and causing havoc as their territory expands or, if a strong military opposition can be mounted, contracts. In the latter cases, rebel groups often operate more like alternative governments within their territories, creating a social contract with the populations on which they depend, providing public goods and access to trade routes in exchange for "taxes." In other words, they rely fiscally on trade with urban areas, instead of predation upon them.

There is great variability not only between different civil wars and rebel groups, but also between different geographically defined factions of the same

movement.[1] To that extent, it had seemed logical for policymakers facing rural-based insurgencies to focus on strengthening so-called "rural–urban linkages"—the movement of people, goods and capital between urban and rural areas[2]—in an effort to promote rural development and (the thinking goes) thereby reduce or eliminate the drivers of violent conflict (ESCAP/UN-Habitat, 2002). But strengthening rural–urban linkages may involve, among other things, the lowering of transactions and transportation costs between the two. And as illustrated above in Figure 3.2, lowering transactions costs may actually increase monopoly power of large cities' manufacturing and service sectors over smaller ones, potentially driving unemployment in less competitive markets. So to what extent can variations in insurgent violence levels be attributed to the strength of rural–urban linkages? Or does the *shape* of the trade networks that link the two areas also play a role? This chapter attempts to answer these questions employing quantitative analyses (fixed-effects regression models) based on GIS-derived variables, and using the case of the Maoist insurgency in rural India.

6.2 Hypothesizing Violence at the Combat Frontier

There have been many sophisticated explanations forwarded of how economic incentives differentially impact the behavior of insurgent groups.[3] Three particularly relevant ones are those of James Scott, Mancur Olson, and Jeremy Weinstein. Scott argued that peasant uprisings occur to prevent economic change (often initiated or driven by the urban sector) when it is destroying traditional livelihoods without creating new opportunities (Scott, 1976). The Scott theory applies primarily to uprising initiation, rather than to intensity per se, but it might be hypothesized that the extent of livelihood destruction might correlate to the intensity of the resulting insurgency. Olson argued that roving bandits have little reason to create a social contract, while stationary bandits have an incentive to provide public goods and thereby enable the economic success of their territory, in which they can share (Olson, 2000). More recently, Weinstein (2007) has argued that initial

[1] Weinstein (2007) notes, for instance, that while Peru's *Sendero Luminoso* rebels were generally strategic in their use of violence, their regional Upper Huallaga Valley committee was notorious for its mistreatment of civilians.

[2] For a discussion of rural–urban linkages, see Section 6.2.

[3] By definition, models which differentiate between insurgents and (in this case, peasant) producers go beyond the simple assumptions of classical conflict economics, which posit that (a) territorial production levels are chosen by the group controlling the territory, and (b) all value produced in the two rival territories is either contestable (as in Hirshleifer, 1988) or not (as in Caruso, 2008). Rather than dictating and profiting from territorial production, rebel groups influence production levels through their adopted governance style.

resource endowments largely determine the organizational behavior of the rebel group. Groups with a comparative abundance of economic resources will attract opportunistic recruits and will be less incentivized to invest in disciplinary structures that would restrain their members' excesses. Groups without such resources that must depend more on social capital will tend to attract committed recruits and create social contracts with the populations on which they depend.

Viewed in sequence, these theories exhibit a striking evolving theme: they portray the rebel group as progressively less and less financially tied to the residents of their territory. In Scott's theory, the group composed entirely of peasant residents, and little distinction is made between the rebels and the peasants from which they draw recruits. In Olson's theory, the rebel group—or "bandit"—is already a differentiated actor, but still depends on resident taxation for its funding (whether repeatedly from the same population, or in one-off events from various populations). Finally, Weinstein introduces the possibility that the group may be completely untethered to local funding requirements, thereby introducing the potential for complete diametric opposition of local and rebel interests.

Building on these insights, I will approach the insurgency–peasant relationship from the perspective of economic geography, with a particular focus on trade networks (i.e. supply and distribution chains) that (1) link rural and urban areas, and (2) may be more or less dispersed or concentrated. I assume that insurgent funding is to some extent conditioned by geographic access to trade routes, and that this applies no matter whether the group is selling a local extractive good internationally or taxing local agricultural production. I also assume that groups are *somewhat* stationary (i.e. that they may rove, but must do so within a certain bounded territory). To model rural–urban linkages, I allow for *some* kind of economic relationship existing to varying degrees between rural and urban areas, but allow that these relationships could conceivably be positive or negative.[4] That is, higher urban production might boost or diminish rural production to different extents in different states. Following Fafchamps (2001), I argue that rural–urban linkages may be conditioned by differential potential for monopsony or monopoly. The potential for monopoly and monopsony are thought to diminish with greater numbers of redundancies within the production network. But unlike in Fafchamps' framework, it is not the traders who exploit rural buyers and sellers in cases of few rural–urban trade routes, but rather the insurgent groups, who can more readily tax traders' profits by blocking passageways.

[4] The possibility for both virtuous and vicious rural-urban circles was recognized over a half century ago by Hoselitz (1955) in an article titled "Generative and Parasitic Cities."

I have noted above (in Chapters 3 and 4) that firms—the essential units of urban economic production—tend to disperse those elements of their production networks that have come under the most intense predation by rebel groups. My argument here then operates in the reverse direction: dispersed production networks discourage rebel groups' violent excesses. Economic goods (or rather, those who carry them) may be better able to dodge strikes and roadblocks when production networks have the potential for dispersal, thus forcing rebel groups to enter into relations with locals based on negotiation and mutual gains. Moreover, as will be argued in Chapter 7, transportation networks that allow for multiple access points to urban markets will tend to diminish monopolistic rural–urban economic relationships, and thereby lower the transportation costs posited as playing a role in shaping the combat frontier in the core–periphery model presented in Chapter 2.

I therefore test the following hypotheses: first, that strong rural–urban linkages will tend to diminish the intensity of the violence employed by insurgent groups. And second, that strong potential for production network dispersal will tend to diminish the intensity of the violence employed by insurgent groups.

6.3 Background to the Naxal Conflict

I use the case of the Maoist insurgency in India's "Red Corridor"—also called the "Naxal" or "Naxalite" movement after a peasant uprising in the West Bengal town of Naxalbari in 1967—to test these hypotheses. The Naxals and the fight against them cost the lives of around 600 people per year over the past 12 years, only surpassing the Correlates of War project's definitional threshold for "war" in 2010 with a death toll of nearly 1,200 (South Asia Terrorism Portal, 2016). Recent years have seen lower violence levels from that peak (see Figure 6.1).

The Naxal movement first gathered steam in the late 1960s and early 1970s, and was largely stamped out by the Indian government in the following decades. The opening of the Indian economy, however, and the resulting effects of economic globalization—everything from large-scale development projects such as dams and Special Economic Zones that displace marginalized groups; to rampant mineral extraction in jungle areas; to the rapid development of farmland and forests on which tribal, pastoralist, and poor people depend—have seen it roar back to life. While historically consisting of an urban intelligencia and a rural peasant base of support, the Naxals and their front organizations today are increasingly finding themselves struggling to remain hidden in urban areas—a trend attested to by the arrest in 2009 of Kobad Ghandy, the South Western Regional Bureau (SWRB) coordinator for the premiere Naxal group, the Communist Party of India (Maoist), or CPI-M.

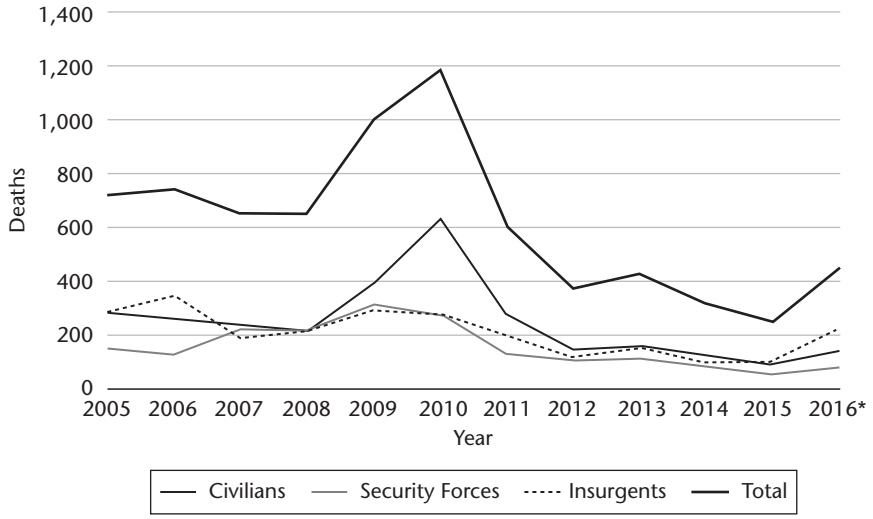

Figure 6.1 Deaths from Maoist violence in India, 2005–2016. * 2016 figures have been annualized.

Source: South Asia Terrorism Portal (2016).

The CPI-M formed in 2004 through the merger of the Communist Party of India (Marxist-Leninist) People's War and the Maoist Communist Centre of India. Ghandy was organizing Naxal activity in Tamil Nadu, Karnataka, Kerala, and Maharashtra, when he was caught living in Delhi on September 20, 2009 (Reddy, 2009).

In recent years, Naxals have been present in at least 16 of India's 28 states (Qadri, 2009), and 170 of 602 districts (The Economist, 2006). They primarily find purchase in the remote and less developed forested belts running generally from the Nepali border in the north to the inland mountains of Kerala and Tamil Nadu in the south (see Figure 6.2). It is a common saying in India that the Naxalites' war begins where the road ends. One Naxal commander interviewed in 2015 was proud to declare six years had passed since last he had set foot on a paved road (Lloyd, 2015). The Naxals draw heavily on marginalized *adivasis* (indigenous tribal people) for their recruits and logistical support, where they are often seen as the only force standing up for the indigenous rights (Chakravarti, 2008). While the various Naxal groups disagree on the overarching strategy for eventual capture of the Indian state, most groups have relied upon recruits from the forest areas, with the intention of then spreading to rural agricultural areas, small towns, and, in the final stage, large cities. As such, it is often seen as a classic case of a rural insurgency, even if its primary recruits are often forest-dwellers rather than agricultural peasants. Nonetheless, Indian cities and towns are largely shielded from Naxalite violence.

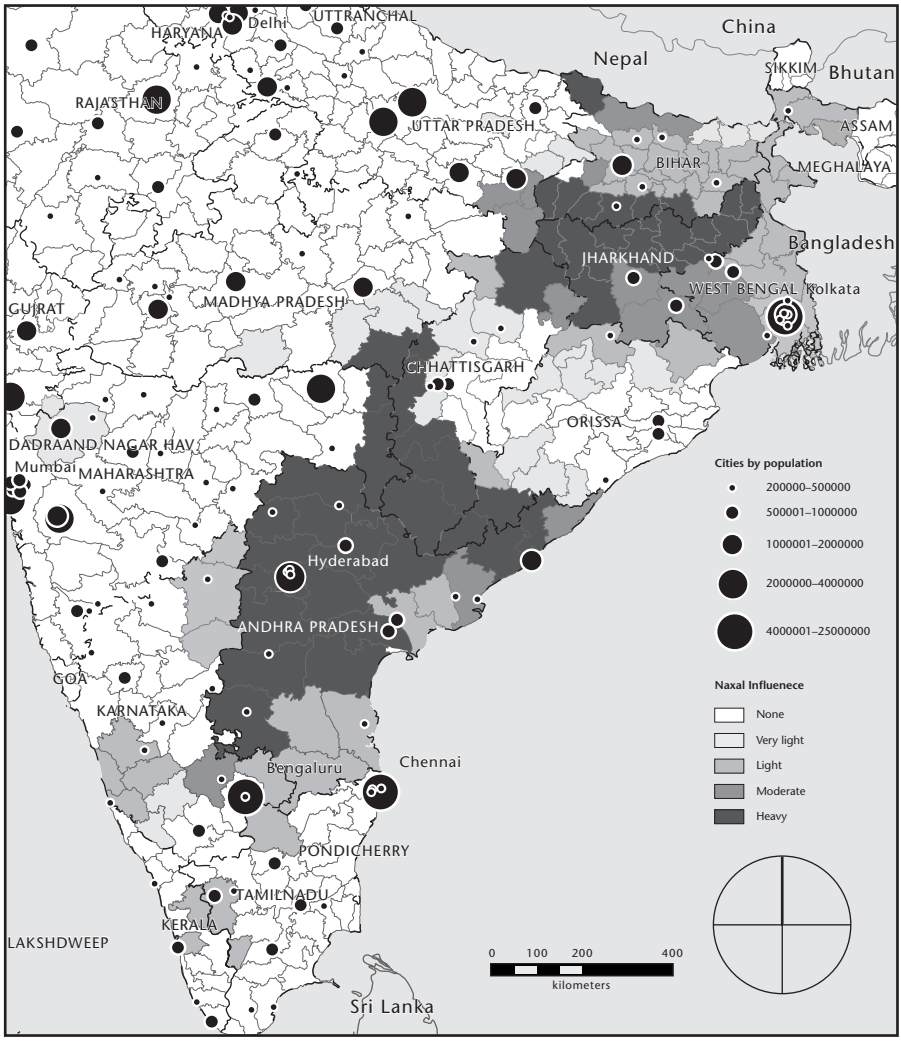

Figure 6.2 Naxal-affected areas of India in 2010 by intensity and major cities by population.

Source: Economist (2006). Map by the author.

The Indian government, at federal and state levels, has contested Maoist territorial control via the Central Reserve Police Force, a special guerilla anti-Naxal police unit called the Commando Battalion for Resolute Action (CoBRA), state police forces, pro-government militia groups, and even the air force, which has lent helicopters to the fight. (Incredibly, the Indian government has even contemplated using its air force to bomb jungle targets, as it did in a 1966

counter-insurgency operation in the restive separatist state of Mizoram (Choudhury, 2010).)

The most infamous of the state-sponsored militias is called the *Salwa Judum*, and it competes with Naxal factions for the loyalty of tribal peasants in Chhattisgarh. Up until 2011 when the Supreme Court determined that state support of the militia was illegal under the Indian constitution, the group received training and weapons from the Chhattisgarh state government. From Salwa Judum's ranks were drawn "Special Police Officers," that the state essentially deputized, armed, and paid. Together, Salwa Judum, the Special Police Officers, and the state police carried out an aggressive offensive dubbed "Operation Green Hunt." The counter-revolutionary movement targeted adivasis in general. Its excesses included the 2009 razing in Bastar district of Chetna Vanvasi Ashram—a resource center that sought to provide healthcare and education to tribal people displaced by the conflict (Mishra, 2009). They also include the 2007 arrest and imprisonment of pediatrician and human rights activist Binayak Sen. Sen had the temerity to provide minister to, and advocate on behalf of, adivasis affected by anti-Naxalite operations, and was jailed on charges of "waging a war against the state" (Vyawahare, 2012).

The Maoist insurgency makes a good case study for this topic for a number of reasons. First, Weinstein would consider them to have been an economic resource-scarce group, at least in the beginning, and thus to have organized principally around the highly selective use of violence. This characterization is more or less accurate, despite the fact that in recent years, the Naxal movement has come to be funded increasingly through extortion of extractive industries operating in jungle areas, such as iron ore, bauxite, limestone, dolomite and, above all, coal (Lloyd, 2015). Local individuals (especially traders) and businesses are often the primary means of funding (Srivastava, 2009)—though external sympathizers also play a role (Paul, 2006). But despite this local dependence and a policy of targeting mostly police and other forces of order, there have been some serious violent excesses committed against civilians in certain areas—for instance, 25 civilians killed in a bomb blast in Dantewada district on February 28, 2006, and 30 displaced villagers killed (mostly by machete) at a camp in Errabore, Chhattisgarh on July 16, 2006. Such violence is often attributed to Naxal suspicions that even tribal civilians—especially town dwellers and those in displacement camps—will potentially seek to undermine Naxal hegemony by joining or aiding a state-sponsored militia. This of course puts civilians in the familiar yet difficult position of being targeted for being neutral, thus pushing them into some level of support for one side or the other.

These considerations lead to the second point: each Naxal cell, while coordinated at the state, regional, and national levels, has particular leadership, recruits (mostly pulled from local populations), and local resident support

structure. Because of their embeddedness in their communities, Naxal tactics and organizational behavior differ across space. Third, India has a robust industrial sector that generates rural–urban linkages of a strength not often seen in other conflict-affected countries. Because this study aims to examine the effects of those very linkages on the potential for violence, it makes sense not to choose a country (like Liberia) where many, if not most, industrial inputs are imported. Finally, India is blessed with a thriving civil society, media, and academia, all of which make for ease of access to reliable information that is often lacking in conflict-affected countries in Africa, for instance. This study uses the Oklahoma City National Memorial Institute for the Prevention of Terrorism (MIPT) database of violent events for the study period January 2000–April 2007.

The remainder of the chapter is organized as follows. Section 6.4 discusses the methods employed in building the statistical model; the uninterested reader may skip directly to Section 6.5. Section 6.4.1 covers the variables included in the model, and Section 6.4.2 builds a control model. Section 6.5 presents and interprets the results of the full model, and presents two parallel models in which the outcome variable is disaggregated into violence and property damage. Section 6.6 discusses the results, and puts these statistical findings in conversation with some of the field research I performed in March and April 2009. Section 6.7 discusses implications for development policy.

6.4 A Statistical Model of Naxal Violence

The basic idea behind this chapter is to find a proxy for the dispersal potential of production networks around the sites hit by Maoist attacks, and to link that proxy to the severity of the attacks themselves. I chose to use the Indian transportation network, because it is publically available in a geographic information system (GIS) compatible format, and can serve almost any industry equally. I began by creating a GIS and assigning geographic coordinates to all incidents described in a database of violent Maoist events created by the MIPT. I then added the major cities and transportation networks of India.[5] Finally, I set about collecting and deriving a number of possible predictor and control variables at the event, district, and state levels as described below.

[5] The road layer was authored by ML InfoMap, Pvt. Ltd. for 2002. The railway layer that was appended to the road layer, as well as the geographic place names layer from which I derived city locations, were authored by the US National Imagery and Mapping Agency (NIMA) for 2003. All GIS files were made available through MIT's geospatial web, accessed in January 2009.

6.4.1 *Variables for Inclusion*

The outcome variable is the severity of the attack carried out. There are at least three ways of measuring severity with this dataset. The first is to assess each kind of violence for which we have measures individually and on its own terms: fatalities, injuries, kidnappings, private property damage, and public property damage. The second is to add all the violence together using some kind of weighting to ensure comparability between violence types. The third is to perform a principal components analysis and use one or more of the resulting components as an indicator.

This study will begin with the second type, namely an additive measure of violence and property damage. The rationale behind this choice is twofold. First, it is somewhat intuitive, whereas a PCA would not necessarily be. Second, the destruction of one's house, car, tractor, etc., may affect a family's livelihood just as dramatically as the killing of one of its productive members. I multiplied injuries and kidnappings by 0.5, while fatalities count fully toward the total. Property damage was somewhat arbitrarily counted as a "unit" (i.e. 1) upon the destruction of a building, home, business, power station, vehicle, etc., and 0.5 when the same was said to have been damaged but not destroyed. The outcome variable, the additive result of violence inflicted and property damage caused, required a logarithmic transformation (natural log of total violence and damage plus one) in order to bring studentized residuals plots into rough conformation with a normal distribution. The next step breaks out this index by violence against people versus damage to property. The individual forms of violence (e.g. fatalities, injuries, etc.) were not used because statistical power dropped at that level of disaggregation too dramatically for useful analysis.

The predictor variables are (1) the strength of the rural–urban linkages at the state level (corresponding to the first hypothesis), and (2) the number of road junctions within a 20-kilometer radius of the attack (corresponding to the second). Transportation network junctions are here used as a proxy for the redundancy of possible routes from the event site to an eventual urban or industrial center. While road routes do not perfectly represent the full extent of possible production networks between event sites and urban areas (they neglect walking, air, rail, and shipping possibilities, for instance), they are considered here to account for the bulk of trade that small communities in Naxal-affected districts would likely employ. The variables, arranged by type and listed with their scale and source, are listed in Table 6.1. Appendix D explains how certain variables were derived, including the rural–urban linkage strength variable, which essentially estimates to what extent rural agricultural output is driven by urban factory output.

Table 6.1 Variables considered for inclusion in the Red Corridor regression model and their respective scales and sources

Type	Variable	Scale	Source
Outcome	Total violence and property damage	Event	MIPT
Predictor	Number of road junctions within 20 km each event	Event	GIS
	Number of rail junctions within 20 km each event	Event	GIS
	Rural–urban linkage strength	State	ASI/India Stat/Calculation
Control	**Qualifiers**		
	Target (government vs. private citizens)	Event	MIPT
	Market access and transportation infrastructure		
	Length of roads within 20 km of event	Event	GIS
	Length of roads per km^2, 2000	State	India Stat
	Distance of nearest city or town (km)	Event	GIS
	Average distance of nearest three cities/towns	Event	GIS
	Average distance of nearest 100 cities/towns	Event	GIS
	Population of nearest city	Event	GIS
	Average population of nearest three cities/towns	Event	GIS
	Average population of nearest 100 cities/towns	Event	GIS
	Factories' net value added per population	State	ASI
	Demographics		
	Population density	District	GIS
	Rural population, percent	District	GIS
	Rural laborer population, percent	District	GIS
	Land use and agriculture		
	Percent forest cover, 1988	District	GIS
	Non-agricultural lands, percent, 1988	District	GIS
	Cultivable wastelands, percent, 1988	District	GIS
	Fallow lands, percent, 1988	District	GIS
	Net percentage sown	District	GIS
	Food crops grown (kg per population)	District	GIS
	Non-food crops grown (kg per population)	District	GIS
	State economy		
	Net state domestic product	State	Government of India
	NSDP per capita	State	Government of India
	NSDP growth rate (%)	State	Government of India
	State of the conflict		
	Naxals killed	State	India Stat
	Kill ratio: Naxals to police	State	India Stat
	Weapons reported looted	State	India Stat
	Weapons reported recovered	State	India Stat
	Time		
	Year	Event	MIPT
	State	Event	MIPT
	Month and year	Event	MIPT

6.4.2 *Building a Control Model*

Fixed-effects models cannot be used here, since the road networks, from which derive one of the primary predictors, are themselves fixed effects. This means that a number of control variables at the state and district levels will be required for inclusion. Accordingly, I built hierarchical control models to inform the

selection of control variables to be employed, with random effects at the district and state levels. The variables included for consideration in the control model-building process were each chosen for theoretical or practical reasons.

The control model also includes a variable designating the target as being civilian or government to distinguish qualitatively between different types of violence. It might be presumed that attacks would generally be of greater intensity when directed against the government as opposed to "disciplinary" actions against local citizens and businesses, in order to keep the movement from falling out of popular favor. This strategy dates back to the earliest models of insurgent violence, most famously expostulated by Che Guevara (1998) and Chairman Mao (1961). This variable was, however, found to operate in the opposite fashion—possibly for a few different reasons. For one, attacks against government and police may meet with much less success than those against more-or-less defenseless civilians. For another, the presence of the Salwa Judum implies that peasants are not just varying shades of pro-Naxal, but can, as in Roger Petersen's (2001) framework or that of Kalyvas (2006), act as local proxies for the enemy government. Such is the case in southern Dantewada district, Chhattisgarh, where local tribal people have been repeatedly attacked, displaced, and attacked again by Naxals on the premise that they support the Salwa Judum (The Economist, 2006).

The length of roads within 20 kilometers of each event is important to include for two reasons. First, the road junction variable would not reliably proxy for production networks' dispersal potential to the extent that total road length—highly correlated to road junctions—may actually be the crux of the matter (see Figure 6.3). At one extreme, a 40 km diameter area may contain many roads that converge at a single interior point, thereby representing a reticulated transportation network radiating out from a single junction. On the other extreme, the same size area may contain a multipolar network containing many junctions.[6] This variability is critical to test the dispersal hypothesis, as it should control for a popular alternative explanation for variation in violence—i.e. that the "infestation" of violent Naxalism in India's Red Corridor is a result of "underdevelopment," a key factor of which is lack of roads. According to this narrative, a lack of roads means that markets are more difficult to reach, and less trade occurs, leading to underdevelopment and lowering the opportunity costs of would-be rebels to participate (see e.g. Kujur, 2009 and Narayanan, 2009). In fact, the control models find the mere provision of roads in quantitative terms—whether measured in length of roads near attacks or length of roads per square kilometer in each state—a non-significant predictor of violence. Second, introducing road length may

[6] Network typologies often include multipolar and reticulated (as well as hierarchical) categories (see e.g. Locke, 1995).

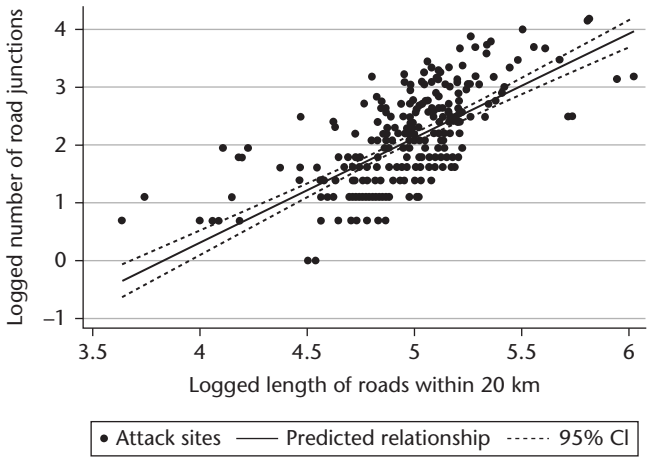

Figure 6.3 Road junctions as a function of road length at Naxal attack sites.

also serve indirectly to control for the population of any given event area, and it might be suggested that larger populations would demand more respect from rural insurgencies than small, more helpless ones.

The model's basic demographic controls include population density, which might be associated with greater civilian harm to the extent that the effects of certain violent means (especially the use of bombs) are not necessarily restricted to those targeted. Higher percentages of rural dwellers per total district population (and rural laborers in the labor force) might be expected to be associated with reduced violence per incident, since the maintenance of loyalty in small, rural communities might better be accomplished through the selective and surgical use of violence, rather than the large-scale violence employed when there is little information on who may or may not be supportive of the movement.

There is another family of control variables dealing with land use and agricultural production. The percentage of a given district's forest cover is included because forests have often been associated with the viability of rebel movements, because forested areas better shelter and hide rebels from government forces (Collier et al., 2003), or because forest-dweller livelihoods are more vulnerable to the project of economic development, and are therefore more likely than others to join rebel movements in revolt (Asian Centre for Human Rights, 2007).[7]

The variable of cultivable "wastelands"—the Indian government's term for non-improved local government land that can be leased for variable periods to members of socioeconomically disadvantaged groups (see

[7] The second take on the role of forests in rebel movements is also in concert with James Scott's (1976) idea that the peasants' decision to take up arms is, to a large extent, a way of resisting socioeconomic change that threatens their cultural survival.

McDougal, 2011b)—was included because such lands might serve as an "escape valve" for socio-economic pressure building on local tribal forest-dwellers. This intuition is reinforced by a series of interviews I had with tribal forest inhabitants in Karnataka who had progressed from being bystanders in the Naxal conflict, to aiders of the movement, to active participants themselves. The interviewees claimed that economic development of the region played out in a complex, intergenerational pattern of land usurpation by upper-caste landholders perpetrated upon tribespeople who were continuously driven off of their former improved lands and into forest lands where they were prosecuted for harvesting forest products. A similar logic underpins the inclusion of fallow lands, and an inverse logic that of sown lands. The total food crops grown per population of each district is included because scholars like André and Platteau (1998) have claimed that a version of the Malthusian Trap may act to spur tensions between resource rivals. Conversely, dependence by peasants on non-food agricultural products—cash crops—have long been blamed for setting in motion process of increasing rural indebtedness and economic instability (Hla Myint, 1964). Two polychotomous variables were included to indicate if the event occurred at moderate or high tea and coffee harvest times, since many Naxal recruits come from tea and coffee producing areas.

The model also seeks to control for the general state of the conflict in that particular state and year. This is important because my basic contention here is that violence levels are not just driven by the military contest between state and insurgent forces. Control variables include the number of the Naxals killed, as well as the kill ratio of police to Naxals. They also include the number of weapons looted by Naxals in a given year, as well as the number of weapons successfully recovered by the forces of order. These are justified on the premise that the accessibility of firearms represents a key factor of destabilization in many countries (Berman et al., 2011, Greene and Marsh, 2012, Muggah, 2012, 2013).

Variables describing the overall macro-economy of the states were also used. Net state domestic product (NSDP) may influence violence because relatively well-off states will have more resources at their disposal, whether for anti-Maoist operations or for rural development projects. Per capita NSDP may influence violence levels by raising opportunity costs for potential recruits, and therefore the wages needed to pay them on the part of Maoist cells. Indeed, the control models consistently find a significant dampening effect of per capita NSDP on violence. Finally, the NSDP growth rate was included as a potential indicator either of encroaching development (which would presumably fuel conflict) or a growing demand for labor (which would presumably dampen conflict).

Year and month fixed-effects are included in two of the models to account for temporal and seasonal spikes in violence. As mentioned, random-effects

were also implemented at the state and district levels to account for differences in how states and local governments have responded to the Naxal issue. For instance, in 2004, the Government of Andhra Pradesh used peace talks with the Naxals as a ruse to lure rebels in hiding out into the open, and then proceeded to hunt them down (Chakravarti, 2008). By contrast, the Government of Chhattisgarh nurtured the Salwa Judum paramilitary outfit to counter the Naxals (The Economist, 2006), while lately Orissa has been employing a grassroots-development strategy (Narayanan, 2009).

The control models built and tested may be found in Appendix D.

6.5 Rural–Urban Strength and Network Reticulation as Violence Moderators

The first hypothesis, which posited that stronger rural–urban linkages would entail lower intensity attacks, is supported by the results (see Appendix D). Rural–urban linkages greatly impact the intensity of violence employed against civilian—but not civilian targets. Figure 6.4 shows how the intensity of attacks on civilian targets is much greater in states with the weakest rural–urban linkages versus those with the strongest, while the strength of rural–urban linkages has no statistically significant effect on violence levels employed against government targets at all.[8] Note, too, that the violence is represented on a logarithmic scale, so predicted violence drops very rapidly with marginal rises in rural–urban linkage strength from very low levels.

The fact that the effect of rural–urban linkages operates solely on civilian targets would seem to undermine the contention that rebel recruitment is the mechanism linking rural–urban linkages and violence. For instance, the standard "opportunity cost" explanation would hold that weaker rural–urban linkages imply that rural livelihoods are not benefiting from the strong economic growth India experienced over the study period. The opportunity cost of joining a Maoist group would therefore be lower than in states with stronger rural–urban linkages. A competing hypothesis might hold that such conditions facilitate rebel recruitment by heightening socio-economic inequality and stoking grievances. But in either case, higher rates of rebel recruitment should drive up violence against government targets, which we do not observe. The data is unable to tell us whether the civilian target in question is an adivasi or a non-tribal civilian. But it is not implausible that stronger rural–urban linkages suggest that rural areas represent important export bases, whose value is best preserved by curbing violence to enable rural–urban trade.

[8] Note that the diagram depicts Model 4.

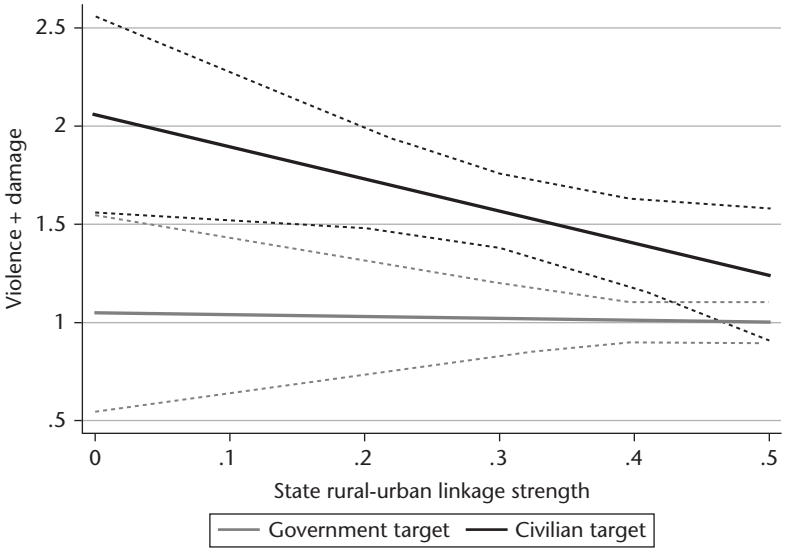

Figure 6.4 Adjusted predictions of additive index of Maoist violence plus damage inflicted on civilian and government targets as a function of rural–urban linkage strength.

However, these results should be interpreted with caution. Rural–urban linkage strength was calculable at the state-level, rather than a unit better pertaining to the unit of analysis of this study—i.e. a violent incident. It may be the case, for instance, that weak rural–urban linkages are simply a function of large adivasi populations; adivasis as a rule do not participate in the market economy as fully as most other segments of Indian society. Moreover, the cross-sectional nature of the dataset does not allow us to infer that a policy of improving rural–urban linkages—say, supporting rural-serving industry in small towns—would actually bring about less violence.

As hypothesized, reticulated transportation networks are also associated with reduced insurgent violence and damage. In this case, too, the effect differs based on the nature of the target. Non-citizen targets generally do not experience higher or lower violence based on reticulated road networks. Citizen targets, on the other hand, see a dramatic decline in violence when they are redundantly connected (see Figure 6.5[9]). While violence against civilians is typically worse than against non-civilian targets given few road junctions, the two equations cross at around 15 junctions within 20 kilometers. Above that number, civilian targets will tend to be less damaged by rebel violence, while non-civilian targets attract relatively more violent attacks. Importantly, the

[9] Note that the diagram depicts Model 4.

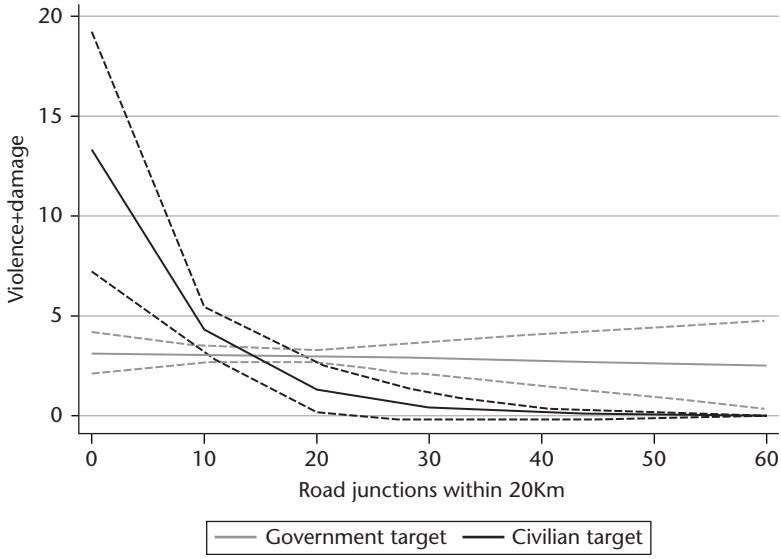

Figure 6.5 Adjusted predictions of additive index of Maoist violence plus damage inflicted on civilian and government targets by proximal road junctions.

effect of such network redundancy—that is, placement in a reticulated road network—operates in addition to the effects of geographic access to roads and urban markets. It is not just the fact of being connected efficiently to urban markets that explains relatively more restrained attacks, but being connected with options, as well.

Finally, I disaggregate the outcome variable into its constituent components, violence and property damage. I also examine the interactions between our main predictors: the type of target (civilian versus government), the strength of rural–urban linkages, and the redundancy of the transportation network (as measured by number of road junctions within 20 km). (The results are summarized in Table D.5.) This analytical approach yields two number of noteworthy findings. First, both rural–urban linkage strength and road network redundancy continue to be associated with organized violence, but not with property damage. The previous findings would seem then to be driven primarily by the link to violence in particular. Second, weak rural–urban linkage strength and weak road network redundancy seem to exacerbate each other's effect on violence. In other words, there is an intersectionality effect: violence in areas with weak rural–urban linkages and monopolistic road networks is worse than would be predicted simply by considering each of these factors separately. These relationships are represented graphically in Figure 6.6.[10]

[10] Note that the diagram depicts Model 4.

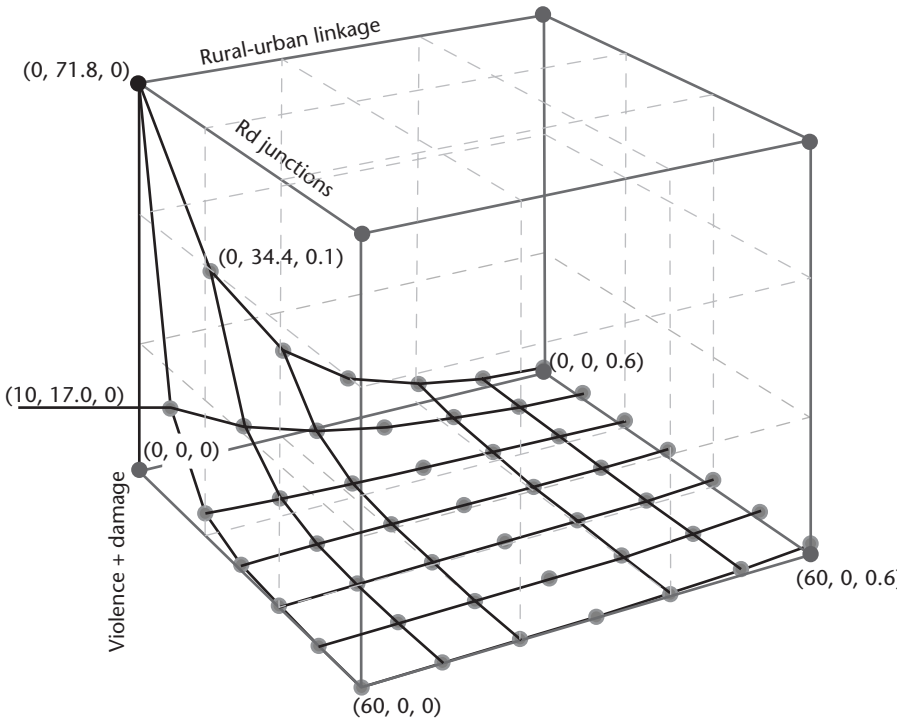

Figure 6.6 Total violence (y-axis) as a controlled function of road junctions (x-axis) and rural–urban linkage strength (z-axis).

6.6 Theorizing Mechanisms

I hope now to put some meat on these statistical bones. I have argued, consistent with my two research hypotheses, that (1) strong rural–urban linkages do in fact lower the intensity of violence employed by the rural Maoist insurgency against civilian people (but not against government targets or property); and (2) redundantly connected areas experience lower levels of violence against people. Evidence for the second hypothesis supports the idea that production networks—whether supply- or distribution-oriented, and whether agricultural or non-agricultural in nature—are less prone to predation when they have reticulated channels to exploit. By imposing predation costs on Maoists, reticulated transportation networks incent restraint in a bid to facilitate rural–urban trade.

Non-citizen targets do not benefit from the same "dispersal vaccine." I would suggest that this is because the police, government offices, telecommunications infrastructure, and public transportation vehicles typically do not offer rebel groups financial targets (though periodically Maoist insurgents

have been known to loot from the passengers on board the trains they attack[11]), but rather military, political, or symbolic ones.

Is it reasonable to equate violence against civilians with economic predation? I am of the opinion that it generally is, given the form of revenue generation that Naxal cells depend on, based on trade taxation (as elaborated upon in the following chapter). This dependence requires restraint in the use of violence, but may also require its strategic employment in order to control the movement of people across the combat frontier.

Indeed, the link between organized violence and enrichment is commonly observed. In an unrelated study I undertook on behalf of the international NGO Mercy Corps, our team was tasked with assessing the effects of violence between farmers and pastoralists competing over access to land and water in the Middle Belt states of Nigeria. There, too, circular causation between the predictor (violence) and the outcome (income) was an issue, and one which we were able to control for statistically. Consonant with our initial hypothesis that violence depressed incomes, we found that a hypothetical reduction of farmer-pastoralist violence to near-zero levels would likely boost incomes between 64 percent and 210 percent (McDougal et al., 2015). However, when we shifted our outcome to asset wealth instead of income, our results were both surprising and understandable. Residents of areas in which violence had occurred possessed significantly greater assets by value than residents in which no violence occurred. A qualitative exploration of this phenomenon yielded the explanation that victims of farmer-pastoralist violence, especially if they were semi-nomadic pastoralists, tended to flee to safer areas. In so doing, they essentially forfeited their claims to pasture lands and watering holes, leaving more assets for the remaining farmers to self-report as belonging to them.[12]

The Maoist insurgency in most areas of rural India depends upon the local populations for its logistical and financial support—not to mention the recruits it needs as it attempts to add territory to its sway. They administer *Jan Adalat*, or "people's courts" (Asian Centre for Human Rights, 2007) and levy "taxes" in their territories (Qadri, 2009). There is variation in how coercive taxes may be, posited here as being directly related to how violent attacks are. "Surgical" strikes that take out a single person suspected of colluding with the government or opposition groups such as the Communist Party of India—Marxist-Leninist Liberation (a non-violent and legal political party) or the Salwa Judum do not necessarily tear at the social fabric of the communities

[11] On December 24, 2005, for instance, Maoists attacked a train between Vijaywada and Raigarh, Andhra Pradesh, and, in addition to killing constables of the Railway Protection Force (RPF), also unburdened them of a cash box containing staff salaries totaling Rs 750,000 (IBN Live, 2005).

[12] There has been significant scholarship contending that the Black Plague in fourteenth-century Europe had the effect of boosting wages, as well as raising the capital-to-labor ratio, across the continent (Tuchman, 1978, Voigtländer and Voth, 3).

governed, while mass attacks on villages and displacement camps in Dantewada district do. As mentioned above, traders and businesses are often taxed by Maoists as a means of funding (Srivastava, 2009). This means that while local police and government may have the same dispersal potential as private citizens in highly networked areas, this ability does not restrain the Naxal groups themselves, as it does in the case of private citizens. In fact, there could be countervailing tendency at work in the case of government targets: dispersed transportation networks in such cases serve as advantageous Naxal attack and retreat routes rather than supply and distribution chain pathways.

The lack of relationship between either strength of rural–urban linkages or the redundancy of transportation networks on the one hand, and destruction of private property on the other, fits in with the general picture this chapter paints. The pre-eminent importance of taxation and predation of goods as a means of Naxal funding would imply that people, not things, are the objects of violence. Unlike the roving "free companies" of fourteenth-century France, who used not only violence but also property damage against the poor to frighten the rich into paying them off, the stationary Naxals have little to gain by destroying civilian property.

Chapter 7 will seek to put a human face on this process. For the moment, suffice it to say that firms operating in environments of high predation will often outsource their supply and distribution functions to petty traders who know the terrain and the local populations. This was the case, as we saw, in Liberia during that country's civil war. Women traders in particular were considered less of a military threat by government and rebel soldiers, and so passed less noticed between the two territories. In so doing, they often learned about rebel offensives, and would return to tell their family members—some of whom would be working at production firms—when and where these attacks were to take place. In this way, dispersed production networks facilitated information-gathering and allowed firms to continue to operate with minimal losses to their human resources. To amend a Warren Buffet quote, diversification becomes not only a protection against, but also a remedy for, ignorance. A similar process may well be at work in the Indian context, where dispersed networks allow for fewer surprises against civilians outside of so-called "liberated" (that is, Naxal-controlled) areas.

Certainly, production networks are not the only factor at play in the Naxal conflict—but they may bear on other, more well-appreciated features of that conflict. For instance, land tenure and access to forest resources have often been cited as two of the primary reasons for Maoist support among local populations—especially tribal people whose claim to the land is traditional rather than legal, and whose livelihoods have been adversely affected by extractive industries in Chhattisgarh and Bihar, the installation of special economic zones, and encroaching development (Joseph, 2007).

In Karnataka, for instance, I interviewed a group of tribal people who had begun to support, and finally ally themselves with, the local Naxal movement—originally an out-of-state implant that failed to take hold in urban centers. The tribal people I interviewed described a process of land usurpation practiced upon them by the wealthy upper-castes. In this process, a tribal person working a plot of land for subsistence would be encouraged by a local agricultural landholder to plant a cash crop—in this case tea or coffee—for sale to him. The rate would be enticing, and the farmer would comply. However, when financial difficulties arise—too much or too little rain, a failed crop, etc.—the farmer might get a loan or advance from the landholder. The farmer would not realize it, but the contract he signed to obtain the loan puts a lien on his plot. Upon the eventual death of the original tribal farmer, the landholder seizes the land legally, and the farmer's sons are forced into a sharecropping position in which their share is quite small. If they then decide they want to work less on the land and exploit forest resources to supplement their livelihood, the landholder may, citing environmental protection laws pertaining to national parks, employ his connections with local authorities—police, lawyers, or park rangers—to prevent the famer's descendants from continuing to harvest forest products. The descendants are thereby relegated to a status of quasi-indentured serf. This general storyline is corroborated by the Expert Group Report to the Planning Commission of India (2008).

The Western Ghats of Karnataka, however, are fairly well networked. The Maoist insurgency there has not dared many brazen acts of violence, but rather has confined itself to small-scale extortion and hit-and-run tactics. The Maoist presence, however, is just strong enough to have the effect of raising agricultural wages, even of those who are not associated with the movement. In essence, the local landholders must compete with their pocketbooks for the hearts and minds of the locals, and the recourse to violence serves as a cudgel in wage negotiations.

In contrast, in a strip of Andhra Pradesh near the Chhattisgarh border, where few roads penetrate, the Maoist insurgency has become fearsome enough to drive wealthy landholders away. Andhra, however, is not Dantewada—it is not yet "liberated." The fighting there has continued for years between Naxal groups and government forces. This back-and-forth has meant that much of the vacated land, although reassigned to new "proletariat" cultivators, has been left as a fallow No-Man's-Land, each side fearing the return of the other.

6.7 Implications for Development Policy

This chapter's findings may have a couple of important policy implications. First, at the most superficial level of transportation planning, it seems that

combating the Maoist insurgency and safeguarding the civilian population is not necessarily accomplished effectively through transportation projects geared to link rural areas robustly with urban centers—unless the intention is merely to enable the state to deploy troops more effectively in problematic areas. For instance, the statistical models found that, controlling for market access to the nearest three cities and their respective sizes (which was indeed associated with reduced levels of violence), the existence of one highly proximate and populous city is actually statistically linked to higher levels of violence—possibly due to monopolistic relationships engendered between the attack site and the urban center (discussed in greater detail in Chapter 8). Therefore, a strategy of rural–urban road link construction may even exacerbate the situation, driving the interface between those profiting from development and those disenfranchised by it deeper into Naxal territory. While this course of action may eventually bring an end to the violence, it could do so at the expense of the cultural and economic survival of indigenous tribes. Instead, improving connectivity among existing local roads may work better to diminish Naxal violence and make life safer for tribal people. Such a strategy would also be less-resource intensive than large-scale transportation projects, allowing more of them to be implemented. It is possible that the high correlation between kilometers of roads built in an area and the number of junctions has in the past confused analysts as to the variable of interest. The Expert Group to the Planning Commission of India (2008), for example, explained Naxal activity partially as a function of road length in affected districts. Still, directionality of relationships and the mechanisms driving associations are complex. Roads may be built more easily in areas that are unaffected by Naxal violence, for instance, and Naxal violence may be tempered either by economic growth or the physical "governability" of a region by police—both arguably functions of distance to urban centers by road.

Secondly, supporting rural non-farm industries in order to diversify production networks sector-wise in rural areas, thereby lessening Maoist-affected areas' trade-dependence on urban centers, would also seem a wise strategy. This has been the Government of Andhra Pradesh's approach to development in the Araku Valley on the border with the highly Naxal-affected Orissa district of Malkangiri. There, the state government has long supported a suite of programs including agricultural extension (instructing locals on agricultural techniques to grow coffee effectively), forest product development (helping local tribes with the harvesting, processing and marketing of forest-derived products through the Girijan Co-op Corporation), and coffee production (founding a nonprofit cooperative coffee bean processing facility with the ability to achieve economies of scale in the drying, roasting, and marketing processes). Though surrounded by Naxal activity, the Araku Valley itself is

untouched by Maoist violence. Locals more often support the (legal) communist party, CPI-ML, and the tourist industry thrives.

Finally, promoting the local sourcing of urban industries would also seem, a priori, to lessen the threat of Naxal violence against citizens—though not against government forces. In effect, such an industrial policy would not further military goals of the Indian state in the short term, but would bolster the human security of its citizens, eventually contributing to a potential recognition of state legitimacy in Naxal-affected areas.

In closing, it should be noted that while this chapter presents an argument that a certain phenomenon is taking place, it does not propose a causal mechanism to explain it. At least two different stories might be told to explain the reduction in violence in the presence of dispersed production networks: one top-down, the other bottom-up. In the first story, leaders of Naxal outfits realize that there are more revenues to be generated by reining in their organizations' coercive violence—as it is less effective in that environment—and taxing individuals and businesses in negotiated exchange for some public good (e.g. security, or land access). In the second story, would-be Naxal supporters at the grassroots level simply have fewer challenges to their livelihoods in situations of dispersed production networks, and so do not support the sort of more radical violence that extreme disenfranchisement would breed. Such might be the case in the Araku Valley, for instance, where local tribal people simply do not suffer the kinds of economic traumas at the hands of capitalism and its government facilitators that would be required to justify the risk of involvement—and investment—in a violent organization. An examination of traders engaged in rural–urban trade would be necessary to find out which, if either, story is occurring, and if so, why and how.

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References

André, Catherine and Jean-Philippe Platteau. 1998. "Land Relations under Unbearable Stress: Rwanda Caught in the Malthusian Trap." *Journal of Economic Behavior and Organization*, 34(1): 1–47.

Asian Centre for Human Rights. 2007. "Naxal Conflict in 2006." New Delhi: Asian Centre for Human Rights.

Berman, Eric, Keith Krause, Emile LeBrun, and Glen McDonald eds. 2011. *Small Arms Survey 2011: States of Security*. Geneva: Cambridge University Press.

Caruso, Raul. 2008. "A Model of Conflict, Appropriation and Production in a Two-Sector Economy." *Paper presented at the AEA/ASSA Conference*. New Orleans.

Chakravarti, Sudeep. 2008. *Red Sun: Travels in Naxalite Country*. New Delhi: Penguin Books.

Choudhury, Soumyadip. 2010. "When the Indian Air Force Bombed Aizawl." Cutting the Chai. http://www.cuttingthechai.com/2010/04/11/when-the-indian-air-force-bombed-aizawl (accessed October 28, 2016).

Collier, Paul, V. L. Elliott, Havard Hegre, Anke Hoeffler, Marta Reynal-Querol, and Nicholas Sambanis. 2003. *Breaking the Conflict Trap: Civil War and Development*. Washington, DC: World Bank.

ESCAP/UN-Habitat. 2002. "Rural–urban Linkages and the Role of Small and Medium-Sized Towns in Development: Issues, Concepts and Policies." Siem Reap, Cambodia: UN-Habitat.

Esser, Daniel. 2004. "The City as Arena, Hub and Prey: Patterns of Violence in Kabul and Karachi." *Environment and Urbanization*, 16(2): 31–8.

Expert Group Report to the Planning Commission of India. 2008. "Development Challenges in Extremist-Affected Areas." New Delhi: Government of India.

Fafchamps, Marcel. 2001. "Networks, Communities and Markets in Sub-Saharan Africa: Implications for Firm Growth and Investment." *Journal of African Economies*, 10: 109–42.

Greene, Owen and Nicholas Marsh (eds). 2012. *Small Arms, Crime and Conflict: Global Governance and the Threat of Armed Violence*. London: Routledge.

Guevara, Che. 1998. "Guerilla Warfare," Lincoln: University of Nebraska Press.

Guillen, Abraham. 1973. *Philosophy of the Urban Guerilla*. New York: William Morrow.

Hirshleifer, J. 1988. "The Analytics of Continuing Conflict." *Synthèse*, 76(2): 201–33.

Hoselitz, B. F. 1955. "Generative and Parasitic Cities." *Economic Development and Cultural Change*, 3: 278–94.

IBN Live. 2005. "Maoists Kill 4 Rpf Men, Loot Train." *IBN Live*, December 25.

Joseph, Mallika. 2007. "India: Left-Wing Extremism." *Reintroducing the Human Security Debate in South Asia*. New Delhi: Samskriti Publishers.

Kalyvas, Stathis. 2006. *The Logic of Violence in Civil War*. New York: Cambridge University Press.

Kujur, Rajat Kumar. 2009. "Naxal Conflict in 2008: An Assessment." New Delhi: Institute of Peace and Conflict Studies.

Lloyd, Anthony. 2015. "How Coal Fuels India's Insurgency," *National Geographic*. Washington, DC.

Locke, Richard. 1995. *Remaking the Italian Economy*. Ithaca: Cornell University Press.

Mao, Tse-tung. 1961. *On Guerilla Warfare*. New York: Praeger.

McDougal, Topher L. 2011a. "Insurgent Violence and the Rural–Urban Divide: The Case of Maoist India." In R. Caruso, *Ethnic Conflicts, Civil War and Cost of Conflict*. Bingley, UK: Emerald Group.

McDougal, Topher L. 2011b. "Law of the Landless: The Dalit Bid for Land Redistribution in Gujarat, India." *Journal of Law and Development*, 4(1): 146–67.

McDougal, Topher L., Talia Hagerty, Lisa Inks, Claire-Lorentz Ugo-Ike, Caitriona Dowd, Stone Conroy, and Daniel Ogabiela. 2015. "The Effect of Farmer-Pastoralist Violence

on Income: New Survey Evidence from Nigeria's Middle Belt States." *Economics of Peace and Security Journal*, 10(1): 66–77.

Mishra, Neelabh. 2009. "Iron in the Soulless State: Chhattisgarh Seems Intent on Proving We Are a Half Democracy." *Outlook*. New Delhi: Outlook Publishing India Pvt. Ltd.

Muggah, Robert. 2012. "The Enemy Within: Arms Availability in Africa," J. Piombo, *Future Threats in Africa*. New York: Routledge.

Muggah, Robert. 2013. "Tracking Effects of Small Arms and Light Weapons," P. Batchelor and K. Kenkle, *Controlling Small Arms: Consolidation, Innovation and Relevance in Research Policy*. New York: Routledge.

Myint, Hla. 1964. *The Economics of the Developing Countries*. New York: Praeger.

Narayanan, Dinesh. 2009. "The Peacekeeper: A Civil Servant in a Naxal-Dominated District in Madhya Pradesh Shows How to Stem the Violence and Win Back the People." *Business*, September 29.

Olson, Mancur. 2000. *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships*. Oxford: Oxford University Press.

Paul, P. 2006. "The Naxal Corridor." *Security Research Review*, 2(1).

Petersen, Roger. 2001. *Resistance and Rebellion: Lessons from Eastern Europe*. New York: Cambridge University Press.

Qadri, Mustafa. 2009. "A Very Indian Insurgency," *Guardian*, September 16.

Ramsbotham, Oliver, Tom Woodhouse, and Tom Miall. 2005. *Contemporary Conflict Resolution: The Prevention, Management and Transformation of Deadly Conflicts*. Malden, MA: Polity Press.

Reddy, K. Srinivas. 2009. "Kobad Ghandy's Arrest: Major Blow to Maoist Movement," *The Hindu*, September 22.

Scott, James. 1976. *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. New Haven: Yale University Press.

South Asia Terrorism Portal. 2016. *Fatalities in Left-Wing Extremism*. New Delhi: SATP.

Srivastava, Devyani. 2009. *Naxal Attack in Gadchiroli: A Sign of Strength or Weakness?* New Delhi: Institute for Peace & Conflict Studies.

The Economist. 2006. "India's Naxalites: A Specter Haunting India," *The Economist*, August 17.

Tuchman, Barbara W. 1978. *A Distant Mirror: The Calamitous 14th Century*. New York: Ballantine Books.

Voigtländer, Nico and Hans-Joachim Voth. 2013. "The Three Horsemen of Riches: Plague, War, and Urbanization in Early Modern Europe." *Review of Economic Studies*, 80(2): 774–811.

Vyawahare, Malavika. 2012. "A Conversation With: Human Rights Activist Binayak Sen." *New York Times*, December 10.

Weinstein, Jeremy. 2007. *Inside Rebellion: The Politics of Insurgent Violence*. New York: Cambridge University Press.

7

Trade Networks and the Management of the Combat Frontier

7.1 The Case of India with a Backward Glance at West Africa

I have argued in Chapter 6 that reticulated rural–urban transport networks select for more restrained insurgent behavior at attack sites in Maoist India. I suggested that a rationalist economic analysis might view this phenomenon as being driven by shifting bargaining differentials between the Maoist Naxals and traders serving the area. Presumably, such traders would have an easier time "dodging" Naxal taxes—but I admitted that the causal mechanism would be impossible to uncover without some in-depth qualitative research. In this chapter, I will argue that the answer to this question turns indeed on bargaining power between traders and Naxals, operating in a fascinating way: Naxals have more power to strike profitable deals for rural exports when there are many traders available (and thus markets open) to them. This means that towns exhibiting strong and reticulated rural–urban linkages may indeed halt Naxal expansion, but also benefit Naxal coffers and solidify their territorial control. Moreover, I will argue that the reason for this is only partly "rational economic" and partly to do with a set of social norms based on the caste system and mapped onto rural–urban trade networks.

The fundamental issue here is, and has been: How does the shape of a production network actually influence the relationship between the state and non-state groups? That relationship manifests itself nowhere so vividly as at the combat frontier. The combat frontier in Sierra Leone and Liberia was fuzzy and unpredictably dynamic at best, and utterly meaningless at worst (see Chapter 3). By contrast, the most striking features of the combat frontier in India's Red Corridor are its stability and neatness. It is generally a tidy, semi-permanent division of territory, universally recognized by locals on both sides (as will be described below). This distinction—neat versus messy—has important implications for the local economy, as well as for civilian welfare. Neat

combat frontiers allow (most of the time) for businesses and civilians to make plans to avoid violence. The businessmen described in this chapter, for instance, know exactly where the frontier is, and what the protocols are for those who seek to cross it without coming to harm. Those interviewed for Chapter 3, by contrast, complained that a messy frontier made them entirely reliant on petty traders to navigate the violence.

One hypothesis for explaining the messiness of combat frontiers might be that restrained use of force among rebel groups is associated with discrete territorial delineation, while groups employing wanton violence are more likely to produce an environment of unstable territorial definition. The argument might go something like: Restrained groups develop in circumstances in which financial capital is relatively scarce and social capital relatively abundant—requiring them to operate in mutualism with local populations and appeal to recruits on ideological grounds (Weinstein, 2007). This sort of organization might be effectively tied to one territorial area for its support, and therefore better reflect and respect local needs and wishes—in other words, exhibit the characteristics of Olson's (2000) "stationary bandit," rather than his "roving bandit."

However, this hypothesis may explain rebel behavior within their own territory better than the geographical interface between the rebel group and the state. For one, Section 6.3 explains how Naxal cells, while ideologically motivated, are greatly reliant on local support, and largely restrained in the use of violence within their territory, nevertheless employ tactics that vary greatly in their level of violence when they choose to attack targets outside of their control or on their territorial fringes. Moreover, intense violence need not necessarily be associated with a messy combat frontier,[1] or vice versa. Finally, explanations relying on the behavior of rebel organizations and/or government military organizations may, despite their very real analytical insights, miss the underlying (and ongoing) economic relationship between the two territories, between rural and urban.

As an alternative—or rather a supplemental—argument, this chapter contends that the morphology of the combat frontier, and specifically the difference between messy versus neat combat frontiers, is at least partially explained by the constitution of the production networks that cross them, which are in turn partly products of underlying social systems. The social

[1] Kalyvas (2006) contends, for instance, that the eruption of violence in civil war is mainly a function of the relative control of contested territories, since an erosion in, say, state control produces an upsurge in defectors to the other side and a concomitant decrease in denunciations of those defectors. When the two meet—at around the 25% and 75% state control marks—the greatest violence occurs, since there the greatest number of denunciations will be considered accurate by the ruling power. The implication for our purposes is that when control is perfectly contested and power equally balanced (i.e. when territorial control is at its messiest), violence is actually lower than when there is a predominant—but not absolutely dominant—ruler.

structure of society seems to have a counter-intuitive effect on combat frontiers. When conflict occurs in a society composed of identity groups with equal status and mutually exclusive territories ("vertically cleaved societies"), the frontier is often strangely messy—as was the case in Liberia and Sierra Leone, or Eastern Democratic Republic of Congo. By contrast, when conflict breaks out in a society with overlapping and hierarchical identity groups, the result is often an unexpectedly tidy delineation—as in the case of Maoist Chhattishgarh, India.[2] Why should this be so, when common sense would suggest the reverse? It will be my contention that the difference between messy versus delineated combat frontiers is at least partially explained by the constitution of the production networks that cross them, which are in turn partly products of underlying social systems.

As argued in Chapter 5, in Sierra Leone and Liberia, radial rural–urban trade networks took form with increasingly homo-ethnic spokes. That is, rural–urban trade linkages came to be characterized by homogeneous ethic compositions that had a base in the metropole and a distribution network among their rural clan. In India, the rural–urban spokes themselves are very much segmented by caste, with each trader going only part of the way toward the final market. The social structure dictates that different castes come into competitive commercial contact with one another: typically local tribal people acting as local petty traders, low-castes serving as middlemen, and upper-castes acting as long-distance links to urban markets. This dichotomy between homo-ethnic and ethnically segmented trade networks represents a form of Donald Horowitz's (2000) distinction between vertically and horizontally cleaved societies, applied to rural–urban trade networks.

This chapter will use semi-structured interviews of traders in Chhattisgarh and Andhra Pradesh, India, located on either side of the combat frontier, in order to construct a portrait of rural–urban trade in Naxal-affected India. Thirty interviews with local traders living near the combat frontier were obtained—slightly over half of which (17) operated in government-controlled territories and slightly under half of which (13) operated in Naxal-held territories. The idea of this sampling strategy was to develop an idea of how one side communicated with the other: theory generation, in other words. The single-case study approach allows for a testing of the hypothesis that the trade network is caste-stratified by function. This methodology does not strictly allow for identification of independent variables (Van Evera, 1997, 53–5)—horizontally versus vertically cleaved societies, in this case—but I will draw tangentially on previous qualitative interviews with traders in Liberia.

[2] Naxals find their foot soldier recruits almost exclusively in the tribal communities. And while it is true that Naxal-held territory often overlaps to a significant extent with tribal forest lands, tribal people are distributed throughout the region.

This chapter will be organized in the following manner: first, in Section 7.2, I lay out a few basic ideas about rural–urban linkages, arguing in particular that small towns generate rural–urban linkages when more of the profit margins associated with rural–urban trade are spent there, galvanizing the formation of non-farm industries. In Section 7.3, I argue that caste conventions have segmented rural–urban trade networks and made the largest profit margins gravitate toward towns near the combat frontier, where upper-caste long-distance traders interface with tribal local traders. In Section 7.4, I argue that this form of rural–urban trade lends itself to a certain stability of territorial claims, and even goes some way toward explaining why Naxal attacks in towns that are redundantly connected to multiple urban areas are generally less violent than in those connected via few routes. Finally, I conclude with some reflections on the generalizability of the findings and policy implications.

7.2 Rural–Urban Linkages

Rural–urban linkages are increasingly recognized as playing a critical function in rural development, replacing policies that treated rural and urban development as separate issues. At a time dubbed "the end of cheap food" (The Economist, 2007), the agricultural sector's multiple functions cannot be overstated: boosting economic activity, enhancing livelihoods and reducing poverty, and providing environmental services (World Bank, 2008). On the other hand, spatial density of urban economic activity confers both pecuniary and non-pecuniary benefits to non-farm industries, and is crucial to long-term growth (Krugman, 1991). The challenge, then, is thought to be in linking the economic advantages stemming from concentration to the often-dispersed activities in the rural sector (Evans, 2001, 1992, Tacoli, 1998).

As explained above in Chapter 2, opinions differ as to the economic function of rural agglomerations. Rural agglomerations might be seen simply as distribution centers for goods and services from higher-order cities or as entrepots for rural products destined for the urban sector (Hinderlink and Titus, 2001). Such a view sees the utility of small towns as a substitute for other, potentially more efficient means of linking the countryside with higher-order cities, such as highway networks. Contrariwise, rural agglomerations with manufacturing and processing capacities are thought to retain and recycle value added within the region (Lanjouw and Feder, 2001). Rising agricultural wages may give rise to more non-farm industry and attract labor to towns. This in turn raises the demand for farm products and generates farm inputs. The resulting rural–urban endogeneity is termed the "virtuous circle" (see Evans, 1992, Irz et al., 2001, Mellor, 1976). The five most important requisites

for jumpstarting this virtuous circle, as identified by regional economics scholars, are:

1. An (actually or potentially) strong agricultural export base (Evans, 1992);
2. An (actually or potentially) strong local manufacturing and processing industries to create jobs up- and down-stream (Irz, Lin, Thirtle, and Wiggins, 2001);
3. A mix of agricultural products destined for export (out of the region) and local 4. consumption to buffer against price shocks (Evans, 1992);
4. Access to land for the poor (Irz, Lin, Thirtle, and Wiggins, 2001, Momen, 2006);[3] and
5. Favorable and stable macroeconomic policies and market prices for outputs (Irz, Lin, Thirtle, and Wiggins, 2001).

Given these requisites, urban agglomerations with strong connections to the agricultural sector are thought to be able to convey a number of benefits that extend beyond those of mere goods and labor linkages between rural and urban areas.[4] In fact, most if not all of those requisites are met in many Naxal-affected rural areas in India. But interestingly, while the potentially strong local manufacturing and processing industries tend to be located in government-administered India, the access to land for the poor is increasingly guaranteed in Naxal-held areas. These strange bedfellows constitute a sort of "antagonistic cooperation" (Sanyal, 1991).

The existence of local upstream and downstream industries is not only the cause of local capital recycling, but also its effect—contributing to a circular, "cumulative" causation like that described by Myrdal (1957). To that extent, processes that encourage trade profit margins to be spent in rural areas of agricultural production may themselves catalyze such strong rural–urban linkages. Long-range traders are typically based in urban hubs,

[3] This recommendation derives from two facts: first, large landholders tend not to use their holdings as efficiently as "middle" farmers (though neither do very poor subsistence farmers), and second, that large landholders can bypass local markets, selling directly to higher-order cities and decreasing local retention of value added.

[4] Rural-serving urban agglomerations may serve three primary functions, according to Lanjouw and Feder (2001): (1) creating or correcting missing or imperfect markets (examples of which low access to credit, information asymmetries, monopoly/monopsony trade arrangements with urban areas (Fafchamps 2001), weaker enforcement of legal institutions in rural areas (and especially of property rights), speculation, free-riding on growth, and drags on efficient land use (UNFPA 2007); (2) conveying positive externalities to other parts of the local economy (by reducing population burdens on large urban areas, coordinating rural non-farm economic activity in dense areas, and encouraging agricultural innovation through decentralized experimentation) (UN Millennium Project 2005); and (3) achieving socio-economic distributional objectives (by diversifying economic activity in order to provide employment close to home, thereby keeping families and communities together, smoothing economic shocks, and retaining value added and jumpstart the rural–urban virtuous circle of economic growth; and by providing services efficiently to non-farm and farm industries).

and their profits are likely to be spent there as well. By contrast, small local traders are more likely to spur the growth of rural non-farm industries. Such industries in Naxal-affected India include both upstream and downstream examples. Examples of upstream industries in higher-level urban areas include Om Agro Biotech, a producer of fertilizers headquartered in the third-tier city of Cuttak (Katak), Orissa (population of just over 500,000 according to the 2001 Census of India), whose products are distributed in Naxal borderlands by one of the questionnaire respondents. Small to medium cities such as Kondagaon and Jagdalpur in Bastar, Chhattisgarh are known for artisans who work with forest products. More local still are the service industries—hotels and restaurants—that have begun to spring up in small trading towns. One trader in Bade Dongar, Chhattisgarh, describes how "[m]any tribal people run hotels, so nowadays people have started doing business in villages, also." Another trader commented that "[m]any tribal people get educated so they also run shops, cycle stores, etc., in villages."

Permanent economic activity in small towns militates against the phenomenon Marcel Fafchamps (2001) whereby rural–urban trade connections become principally characterized by monopoly and monopsony. Nowhere is this countervailing force demonstrated as clearly as in the difference between market towns in government-controlled territory versus those in Naxal-held areas. Whereas in Fafchamps' hypothetical village, agricultural producers must sell their produce to a truck that periodically arrives from the city, producers near government-controlled towns in Bastar have constant access to small shop owners that can coordinate transport for regional export. As one trader explained, "the small shop owners [in small towns] sell the grain to traders in Bade Dongar. Some have links in cities so they also supply at least one *metador* [small truck] in a week." Another trader describes how:

> Nowadays, you can see small grain or provision shops in every village. They also work as *galla* [small traders]. For many people, it's the nearest place to exchange or sell. He [the shop owner] also trades in weekly markets so that he keep stocks at shop. Later on, he sells it at a higher price.

Such possibilities are much less the norm in Naxal-held territories. One trader explained the monopsony power of traders in Naxal-held territories:

> For example, take the case in [the Naxal-held town of] Udandbeda. Villagers sell their *mahua* [forest seed used in the production of soap, detergents, fuel oil, and edible products] . . . for Rs 8 or 9 here [in government-held Bade Dongar]. But at Udandbeda, it is not more than just Rs 5. Villagers get more money here than in the Naxal-controlled area. That means bigger commissions for businessmen [traders] but losses for villagers . . . [P]eople can't bargain over there.

This price disparity across the combat frontier is mentioned time and again by various traders, and seems to be the defining feature of the economic landscape in Naxal-affected areas. As another trader put it, "there is [a price] difference. Tribals do not get proper rates in Naxal[-controlled] markets." The disparity is heightened by the Indian government's subsidized purchase of grains in local *mandi*, or grain societies. In fact, as one trader noted,

> grains cannot be sold on the open market; it's illegal. Grains are sold only in LAMPUS or mandi because of differences in price rate. Government has fixed the rates according to paddy variety. But the same trader pays the correct rates in the outside markets.

The resulting profit margin is the economic engine of many of the small "border" towns, and is split three ways, between local traders, long-distance traders, and Naxals. In this way, a government scheme originally intended to incentivize rural food production and support farmers is captured in part by Naxal leadership. Moreover, local government officials tasked with purchasing rural products can be pressured by threat of Naxal violence to raise the going rates—a form of "protection payment" paid to the Naxal leadership. One trader explained:

> Say, for example, Government purchases *tendu* leaves. Naxals demand . . . such and such amount. 100 leaves make one bunch. Suppose one bunch costs Rs 1, but here the farmer gets Rs 0.75 [75 Paise]. Now, Naxals demand that the *tendu* collector should get around Rs. 110. When government agrees to raise the amount, the Naxals take a commission of Rs. 10 and give Rs. 100 to the people.

7.3 Cleavage and Commerce

Tribal people are almost universally acknowledged by traders to be routinely taken advantage of in business deals. One trader stated baldly:

> the fact is that Tribals are highly exploited by the upper-class and outsiders. Middle men and big traders, too, exploit them very much . . . They are illiterate and innocent, so traders and outsiders misuse and misbehave with them.

The exploitation is often effected by leveraging information asymmetries in market rates, and the trade-by-weight barter system on the basis of which most local markets operate. One trader explained that fluctuations in market prices are often exploited by traders in the know:

> Suppose one kilogram of mango flakes is sold in exchange of one or two kg of onion, depending on rate. Rates are not fixed, it's always changing. Here, traders are much cleverer than villagers . . . [When] the rate of dry products in the market rises, villagers don't realize it . . . Only traders can know about this.

Another oft-used way for traders to get more for less is to rig the weights or rejigger the math:

> Many villagers do not understand the weight system, especially women – and you can see most of the time women do marketing. Here, if traders can cheat non-Tribals, they can easily [do the same to] Tribals. Traders cheat by weight.

The social hierarchy is woven into the composition of trade networks. Tribals are effectively barred from participating in long-distance trade—even if they occasionally work as local traders or in the local service sector. Lower castes are often found as local traders or "middle men" who sell to "big traders," while the upper-caste *Marwaris*[5] largely perform long-distance trade in Chhattisgarh. One Tribal producer of *mahua* explained the cartel-like nature of long-distance trade: "They are of strong social status. They are united commercially." One long-distance trader described the same phenomenon from the inside, noting that he could purchase products neither at too low a price, nor too high:

> We traders are all united, and if someone breaks the rules, then the trader community does not behave gently, so it's difficult to break the local trading system. We have to work and live within the system. And there is another risk that if you raise the rate then the seller can move to another trader or middleman. So I must be careful.

The exceptions largely confirm the rule: one adivasi (i.e. tribal) long-distance trader operating out of Kondagaon explains that he had an uncommonly privileged urban upbringing:

> My story is bit different: it's true that I am Tribal, but I was born and brought up in Kondagaon, among the upper-caste, big trader society. I am educated and learned the technique of business—but the traders who live in villages and forest areas do not dare to ask right things or price [*sic*].

This same trader claimed to have direct access to tribal producers that most big traders did not have, thanks to his own ethnic identity. Well-connected in urban hubs as well as in rural areas, he was able to capture a larger profit margin than many long-distance traders.

Upper-caste, long-distance traders operating in rural towns often come to assemble large networks of middlemen and small traders who go to Naxal-affected areas for them. As one small trader explained:

> Udendabeda [village] is far away and is Naxal-controlled, so there small traders or middle men [are able to get] lower prices; and Bade Dongar is government

[5] *Marwaris* originate from Rajasthan and boast a number of business titans in their caste ranks, including Laxmi Mittal and Ruia brothers of the Essar Group.

> controlled market, here they raise the price. So, the cost of *mahua* in Udendabeda is Rs 7 and in Bade Dongar is Rs 9. So middle men or small traders purchase goods at lower prices and sell them at high prices. So, in Udendabeda, villagers are not getting [the going] price.

These local traders have access to Naxal-affected tribal areas that long-distance traders desire. As one local adivasi trader commented, "Yes, it is [a] complete[ly] tribal area and we have good relations with them. Since I myself am tribal so our relations are good with everybody." Long-distance traders also purchase trading rights in Naxal territories from Naxal leadership for their contract traders. One small trader described the deal:

> Yes, they pay, especially . . . big traders. They have arrangements with Naxals. As you know, middlemen work for big traders. There is an understanding between Naxals and [long-distance] traders that if my middlemen will purchase, do trading or bring forest products from your area, I will pay all, let him work freely . . . [I d]on't know exactly [the amount they pay for each contractor] but not less than Rs 5–6,000.

When asked to whom such large payments were made, the trader responded: "To the direct head" of the local Naxal cell.

In addition to securing trading rights for local contract traders, long-distance traders tend to serve as petty traders' access to credit, in exchange for low prices on forest products—an arrangement that effectively incentivizes local traders to search out and exploit remote tribal populations who are less likely to be familiar with market rates. One petty trader described the situation this way:

> And sometimes middlemen or small traders borrow money from the big main traders so at that time main traders put a condition that only if they sell the items at such and such a rate will I lend you money. So, they go interior areas and purchase in lowest rate as big traders have had suggested.

In this way, trade networks are solidified through mutual economic advantage, even while clearly segmented along caste lines. All petty tribal traders interviewed acknowledged this dichotomy with some version of the following quote: "They [long-distance traders] come from Narayanpur[6] and are mostly non-tribal. We have good relations with them."

7.4 Segmentation and Stability

The Naxal combat frontier exists in a state of punctuated equilibrium. Aside from occasional military actions—dramatic attacks by Naxals on police

[6] A small town of indeterminate population due to Naxal threats to census workers.

outposts (see e.g. Srivastava, 2009), attacks by the formerly state-backed Salwa Judum militia on perceived Maoist sympathizers (Srivastava, 2010), and major government military offensives such as those carried out under the banner of Operation Green Hunt (see e.g. The Economic Times, 2010), all of which may dramatically shift the frontier one way or the other—the line is mostly stable and recognized. One Bastar-based trader easily recounted which local towns were on the government side of the line (Benur, Chheribeda, Bade Dongar) and which were on the Naxal-controlled side (Chinganaar, Edka, Khadka, Kulanaar), as well as on which days of the week each town's market took place. Another trader noted that there is no overlap or gray area in terms of sovereignty: "there is no effect of government activities in Naxal-controlled areas. It is [*sic*] completely controlled by Naxals."

The crisp frontier is a boon to both Naxal leaders and long-distance traders, and is maintained largely through the barring of adivasi from long-distance trade. If more adivasi were allowed into the cadre of the long-distance trade networks, the profit margin in small border towns would likely shrink. This, in turn, would blur the combat frontier by making elite–elite deal structures more difficult. Instead, tribal people are restricted to local-serving functions, and even those involved in "trade" are more involved in storage and coordination than in transport. Accordingly, attacks on cities are indeed trumpeted by Naxal leadership as the final stage of the Maoist uprising—but they are for the time being largely confined to symbolic, and not economic, attacks such as bombings and sabotage.

This arrangement also likely yields more cohesive rebel cells, since it disallows a decentralized approach to revenue collection by Naxal foot soldiers and lieutenants. If such a method of revenue generation were the case, one can imagine that Naxal leaders would have to demand that revenues be kicked back up them, despite having imperfect information about actual levels of revenue collection. This "bottom-up" mechanism would likely contribute to a deterioration of Naxal cells' ability to ensure discipline within their ranks (Lidow, 2016). The Naxal struggle is, then, a counter-entropic one, striving as it does to keep prices from equalizing across the border (and exploiting the caste system to do so) so that the discrepancy can be capitalized upon. In the cases of Liberia and Sierra Leone, by contrast, the major price discrepancy was between the producers and the traders based in urban areas—eliminating the potential for a stable rural–urban combat frontier.

For this reason, the slow dissolution of caste-based barriers to various occupations noted in Section 7.2 (and for which reason one trader optimistically stated, "So right now there is no such caste-based occupation [in town]; therefore everyone is free to work as per their ability and skill"), are likely to contribute eventually to a blurring of the conflict lines and a gradual

dismantlement of the physical organization of violence along polarized government-Naxal lines.

How do these patterns explain more restrained military tactics in areas connected via multiple routes to urban areas (or, conversely, more violent attacks in areas with fewer such reticulated connections)? Moreover, why do Naxals tend to destroy transportation infrastructure built within the territory that they claim as their own? Part of the answer to the second question surely lies in the common wisdom: roads and bridges allow security forces easy access to Naxal-affected areas (Deshpande, 2010). However, in addition, the interviews suggest that sites in "multipolar" networks—that is, towns that are served by a number of different urban areas—will have a larger number of long-distance traders, who will consequently have less bargaining power vis-à-vis Naxal cell leaders when settling on a price for trade access. One trader noted the many different towns that long-distance traders in his village hailed from: "People come from Kondagaon, Kanker, Keshkal, Dhanora, Benur and Narayanpur, and also from very far places. Sellers come from nearby but buyers come from distant places." There is a clear expansionist incentive for the Naxal group when dealing with poorly-connected towns where traders have more bargaining power (and trade routes are relatively cheaply monopolized). By contrast, there is greater incentive for an established frontier in well-connected towns where Naxals may not have to resort to force to get the kinds of deals they desire. This intuition will be expanded upon in Chapter 8.

References

Deshpande, Vivek. 2010. "From a Naxal Bastion, an Nrega Success Story." *Indian Express*, February 2.

Evans, Hugh Emrys. 1992. "A Virtuous Circle Model of Rural–Urban Development: Evidence from a Kenyan Small Town and Its Hinterland." *The Journal of Development Studies*, 28(4): 640–67.

Evans, Hugh Emrys. 2001. "Regional Development through Rural–Urban Linikages: The Parul Programme in Indonesia." In W. B. Stöhr, J. S. Edralin, and D. Mani, *New Regional Development Paradigms (Nrdp): Volume 3: Decentralization Governance, and the New Planning for Local-Level Development*. Westport, CT: Greenwood Press, 79–94.

Fafchamps, Marcel. 2001. "Networks, Communities and Markets in Sub-Saharan Africa: Implications for Firm Growth and Investment." *Journal of African Economies*, 10: 109–42.

Hinderlink, Jan and Milan Titus. 2001. "Small Towns and Regional Development: Major Findings and Policy Implications from Comparative Research." *Urban Studies*, 39(3): 379–91.

Horowitz, Donald. 2000. *Ethnic Groups in Conflict*. Berkeley: University of California Press.

Irz, Xavier, Lin Lin, Colin Thirtle, and Steve Wiggins. 2001. "Agricultural Productivity Growth and Poverty Alleviation." *Development Policy Review*, 19(4): 449–66.

Kalyvas, Stathis. 2006. *The Logic of Violence in Civil War*. New York: Cambridge University Press.

Krugman, Paul. 1991. *Geography and Trade*. Cambridge, MA: MIT Press.

Lanjouw, Peter and Gershon Feder. 2001. "Rural Non-Farm Activities and Rural Development: From Experience towards Strategy." *Rural Development Strategy Background Paper* Washington, DC: World Bank.

Lidow, Nicholai. 2016. *Violent Order: Rebel Organization and Liberia's Civil War*. Cambridge: Cambridge University Press.

Mellor, John. 1976. *The New Economics of Growth*. Ithaca, NY: Cornell University Press.

Momen, Saiful. 2006. "Toward Synergistic Rural–Urban Development: The Experience of the Ruran-Urban Partnership Programme (Rupp) in Nepal." *Working Paper Series on Rural–Urban Interactions and Livelihood Strategies*. International Institute for Environment and Development.

Myrdal, Gunnar. 1957. *Economic Theory and Under-developed Regions*. London: Duckworth.

Olson, Mancur. 2000. *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships*. Oxford: Oxford University Press.

Sanyal, Bishwapriya. 1991. "Antagonistic Cooperation: A Case Study of Nongovernmental Organization, Government and Donors' Relationship in Income-Generating Projets in Bangladesh." *World Development*, 19(10): 1367–79.

Srivastava, Devyani. 2009. *Naxal Attack in Gadchiroli: A Sign of Strength or Weakness?* New Delhi: Institute for Peace and Conflict Studies.

Srivastava, Devyani. 2010. *On Maoist Killings*. New Delhi: Institute of Peace and Conflict Studies.

Tacoli, Cecilia. 1998. "Rural–urban Interactions: A Guide to the Literature." *Environment and Urbanization*, 10(1): 147–66.

The Economic Times. 2010. "Operation Green Hunt Kills 90 Maoists in Chhattisgarh." *The Economic Times*, March 25.

The Economist. 2007. "The End of Cheap Food," *The Economist*, December 6.

UNFPA. 2007. *State of the World Population 2007: Unleashing the Potential of Urban Growth*. New York: United Nations Population Fund.

UN Millennium Development Project. 2005. Innovation: Applying Knowledge in Development. Task Force on Science, Technology and Innovation. London: Earthscan.

Van Evera, Stephen. 1997. *Guide to Methods for Students of Political Science*. Ithaca: Cornell University Press.

Weinstein, Jeremy. 2007. *Inside Rebellion: The Politics of Insurgent Violence*. New York: Cambridge University Press.

World Bank. 2008. "Agriculture for Development." *World Development Report*. Washington, DC: World Bank.

Part IV
Conclusion

8

Interstitial Economies

8.1 Where We Have Come

I initially stated the overarching thrust of this book: traders draw on social norms in situations of rural–urban conflict to activate the trade networks that are the circulatory system of the economy, linking production centers to sources of materials inputs and demand. They promote continued local production, distribution, knowledge-generation, and a form of economic order in the interstices of competing governance structures, and despite widespread violence and pillaging. I also contended that, in so doing, they affect the velocity and form of the combat frontier itself. I will briefly summarize the evidence-based sections.

Part II was geared to demonstrating how production networks adapt to rural–urban violence. Chapter 3 argued that production centers in Liberia generally reduced their risk of predation by coordinating their production processes with the timing of their supply and distribution networks. The latter, in turn, multiplied and splintered: many petty traders—mostly women, and of heterogeneous ethnic makeup—replaced the bulk distribution methods that had proven more efficient in peacetime. These networks were largely constructed along ethnic lines, so as to ensure a certain baseline level of trust within the network, as well as to ensure that the traders could gain access to the rural areas in which they distributed and from which they sourced. These clan and family ties made it difficult for violent actors to loot effectively, because companies would receive warnings of impending attacks through their extended network of distributors—an occurrence that one would expect to be exceedingly rare if the calculus of rebel soldiers was solely determined by economic gain, and not also by social bonds. When rebels overran Monrovia's industrial district, for instance, managers at a local metal works company had advanced word of the attack through the petty traders who supplied their raw timber products. They were able to lock down their facility and give their employees advance notice to make arrangements for their families to hide. It is

worth noting that in India, where rural–urban trade networks are not homoethnic, Maoist rebel (Naxal) attacks on urban areas are often seen to come "out of the blue."

Chapter 4 again used the case of the Liberian Civil War to make parallels between the effects of civil war on the economy, and the purported effects of Import Substitution Industrialization (or, more properly, "state-led industrialization") policies. It argued that the risk of predation of imported goods by violent actors and looters at the major ports of entry had the effect of localizing production chains. Moreover, those firms that were better able to plug into local trade networks were more likely to use locally sourced products. It seems that the distribution networks described in Chapter 3 can also become supply chains.

Chapter 5 marshalled evidence for the thesis that violence in the Sierra Leonean and Liberian contexts did indeed tend to produce trade networks that are ethnically homogeneous in composition. The implication is that these networks in the West African context rely upon an ethnically based sense of solidarity to ensure trust. This is not a new observation, but as Chapter 7 later pointed out, it does not hold in all cases.

Part III turned the tables: instead of production and trade networks being affected by violence, it investigated how they in turn affect conflict dynamics. Chapter 6 used the case of Maoist India to argue that towns and villages that were networked in reticulated fashion tend also to be the target of less violent attacks. The chapter postulated that this phenomenon might be because rebels in those areas are less able to control the trade routes to and from the towns, and are therefore less able to "tax" the trade by means of coercion. Instead, the chapter posited that some type of mutually beneficial deal is struck between rebel leaders and long-distance traders in those areas.

Chapter 7 was intended to flesh out the causal mechanisms hinted at in Chapter 6. It contended that the social norms structuring society at large also deeply inform the way trade networks operate. It noted that the hierarchical form of the caste-based Indian society gave rise to trade networks in which a caste-based division of labor is maintained: lower-castes and tribal people deal with local trade, and higher-castes engage in long-distance trade. This segmentation, it was suggested, contributes to an orderliness of the combat frontier; by enforcing the caste bar on tribal people in long-distance trade, long-distance traders ensure that local populations have little ethnically "direct" trade access to urban areas, and that the trade that does take place between Naxal-held hinterlands and government-controlled cities remains in the hands of an elite few. Those elite long-distance traders can then strike deals with Naxal cells for trade access, thereby incentivizing Naxals to firmly hold onto their own territory, while discouraging them from taking over such profitable towns. Moreover, such elite–elite deals preclude the possibility that

Naxal lieutenants and foot soldiers, as "street-level bureaucrats," are able to pay their own salaries by way of extorting petty traders. Presumably, Naxal leaders are thereby better able to control their subordinates and limit the use of violence strategically.

Moreover, this mechanism, it was suggested, might help explain the phenomenon described in Chapter 6 whereby well-connected towns are less violently targeted by rebels. Well-connected towns on the outskirts of government-controlled territory tend to have more upper-caste traders, such that their bargaining power vis-à-vis Naxal cell leaders is more limited than in poorly connected towns. A corollary of this hypothesis was also mentioned, namely that when there is access to multiple urban hubs, the profit margins on rural–urban trade naturally shift from the city toward the hinterland, thereby undermining the rebel drive toward urban centers.

Taken together, the preceding sections hopefully paint a portrait of production networks as living, protean entities that interact in sometimes complex ways with violent actors, productive actors, and social norms. The latter may configure production networks, and thereby influence the form of the conflict itself and the very distinction between urban and rural, state and non-state. In some ways, the focus here on such social mores as clan solidarity and the caste system in state formation echo those of Elias (2000 [1994]), and might also resonate with some ideas of religious mores as central to the consolidation of the state (cf. Luttwak, 1994, Van Der Veer and Lehmann, 1999).

I intend now to draw out the implications of Chapter 7 more fully, putting them in comparative perspective with the lessons from West Africa.

8.2 Trade Networks and Society in Comparative Perspective

I have argued broadly that the morphology of the rural–urban linkage—both the transportation network "hardware" and the trader "software"—influences the form and directional tendency of a combat frontier in violent internal conflict. Moreover, I have argued that local social institutions constitute trade relationships differently based on the context. In rural India, a caste-based social structure dictates that rural–urban trade spokes be ethnically segmented by caste. In other words, there is ethnic heterogeneity within in Indian trade networks. Conversely, in the cases of Liberia and Sierra Leone during their respective civil wars, rural–urban trade networks increasingly exhibited ethnic homogeneity within radial networks, and ethnic heterogeneity between networks (see Figure 8.1). To some extent, this might be attributed to the fact that Indian society is ranked, while West African society is largely unranked (Horowitz, 2000).

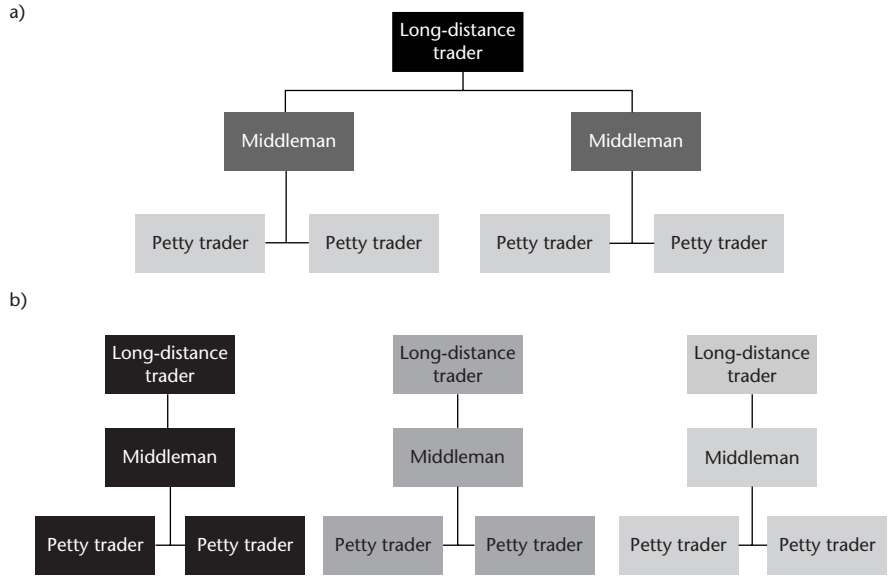

Figure 8.1 Stylized trade network occupations in ranked (A, top) and unranked (B, bottom) societies. Colors correspond to ethnic identity.

Moreover, the ethnic composition of trade networks does not just bear on the ability of insurgent leaders to make comprehensive trade deals with a discrete cadre of long-distance traders. It also implies that ranked-society trade networks may be better able to exploit reticulated transportation networks, since there is no taboo against long-distance trade connecting second-tier cities. By contrast, ethnic monopoly of rural–urban trade by geographic region reinforced the radial nature of trade networks in West Africa, disallowing much trade between second-tier cities, as Figure 8.2 illustrates in a stylized fashion. This trend naturally seems to have exacerbated monopsonistic and monopolistic relationships between rural and urban areas in West Africa, since interethnic trade becomes more risky.

In Chapter 7, I argued that towns with multiple long-distance traders were less likely to present incentives for rebel territorial expansion, since rebels are able to make better trade deals. The idea is that rebel territory expands until it reaches these well-connected towns, then settles into greater equilibrium. In Chapter 6, I suggested that the cost of patrolling dispersed trade networks might also discourage rebel groups from attempting to target such well-connected towns. Figure 8.3 suggests a model of how these two variables informing the calculus of predation versus trade—cost of trade route capture on the one hand, and benefits of trade with increasing bargaining power on the other hand—might play out as a function of trade connections. The price

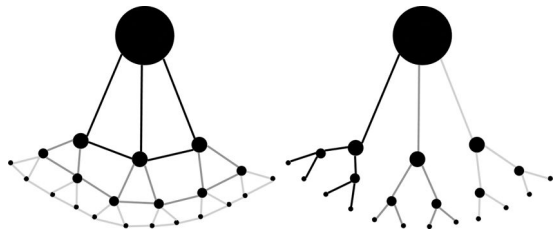

Figure 8.2 Trade network morphologies in ranked (left) and unranked (right) societies. Colors correspond to ethnic identity.

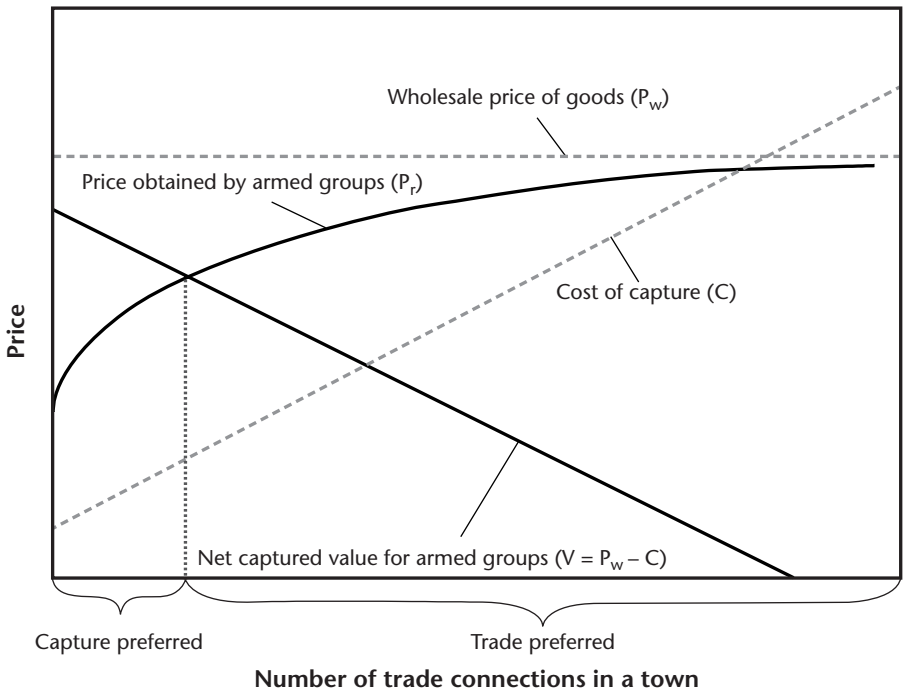

Figure 8.3 The relative value to a rebel group of capturing a town versus doing business with its traders, as a function of the number of trade connections to urban areas.

that rebels are able to obtain through the sale of forest products (P_r) rises asymptotically toward the wholesale price obtainable in a city (minus transportation costs) (P_w) as more and more trade connections are established in a given town. Meanwhile, the cost of capture of the town's trade (C) increases linearly with the number of its trade routes.[1] The net value of capturing the

[1] The cost of capture might obviously be manipulated by the application of military force, as well. This model imagines a world in which government applies no military force whatever.

town (v) might then be represented as ($P_w - C$). When $P_w - C > P_r$, capture of the town makes sense to the rebels. When $P_w - C < P_r$, trade with the town without capturing it makes sense. Obviously, in the case of rural India, the price of forest products only rises further with subsidized government prices paid by mandis. Note that higher prices for agricultural goods decreases the incentive to capture a town but also benefits the rebel organization financially, while lower prices (as well as lower cost of capture) draw rebels closer to the cities.

The model described in Figure 8.3 suggests that high prices for agricultural goods will diffuse the drive to capture towns and cities, but at the cost of funding the rebel organization and crystalizing the combat frontier. The ironic outcome, then, is that a so-called Leninist-Marxist movement would rely for its funding first upon the continued social exclusion of its own constituents from the wider economy, and second upon a close economic relationship with the very upper-caste elements that perpetuate a social system the Maoists purport to detest. The Nepalese Maoists, by contrast, also denounced caste-infused society as "feudal," but made good on attacking the primate city of Kathmandu with a stunning blockade effected in 2004–05.

One reason that a simplistic equilibrium analysis presuming a unitary decision maker might be appropriate in this case is the organization of the Naxal cells themselves. Naxal organizations are hierarchical, with cell leaders making deals with elite traders directly. Nicholai Lidow (2016) notes that when funding for rebel organizations is top-down, the organization itself is much better able to maintain internal discipline and expect subordinates to follow the orders of commanders. He notes that when individual soldiers or petty officers are responsible for funds collection and upstream remittance, organizational cohesion suffers. Even in cases where organizational cohesion is tenuous, though—as in the Liberian case—there is still a profit motive for rural-based rebels considering targets up the urban hierarchy when those towns have monopsonistic and monopolistic relations with the metropole (i.e. when there are fewer trade linkages with large urban markets). But the fact that sub-commanders are self-funding likely means that, in addition to the economic pressure pushing violence toward larger cities, blanket elite–elite trade deals are less possible. That fact in turn undermines the cohesion of the combat frontier itself.

In summary, this book identifies two variables that, together, bear on the interface between government and rebel territory. The first is Horowitz's (2000) distinction between ranked and unranked social structures. The influence of India's caste system in organizing ethnically segmented trans-frontier trade networks has been explored in some detail in Chapter 7, while the phenomenon of homo-ethnic networks in the case of vertically stratified Liberia and Sierra Leone was discussed in Chapter 5. This chapter suggests

that ranked societies lend themselves to ethnically segmented rural–urban trade networks, which in turn tend to produce neater combat frontiers because of their potential for elite–elite trade negotiations. Conversely, unranked societies lend themselves to ethnically homogenous trade networks (especially in the presence of violence), and therefore messier combat frontiers.

The second variable, previously discussed above and in Chapter 6, is that of monopolar versus multipolar rural–urban trade networks. This chapter suggests that when cities have a mono-polar relationship with the hinterland, rebel groups will be incentivized to expand along trade networks "upstream" where the profit margins are greatest. When there are numerous cities in trading relations with a hinterland, they may serve as trade hubs, but the profit margins migrate downstream to rural areas and there are fewer economic incentives for rebel groups to capture urban centers. To use Daniel Esser's (2004) terminology, in the first instance, the city is economic prey; in the second, a hub.

This book begs a number of questions that it does not attempt to answer. First, do mono-/multipolarity and social structure interact and, if so, how? They may not simply be two intersecting variables, despite Table 1.1; they may very well be endogenously related. For example, at the very least we have seen how the social structure of radial trade networks in unranked societies might militate against the full benefits of a reticulated transport system. Considering how ranked-society trade networks may retain portions of trade profits in smaller cities and towns, it is conceivable that, in the long run, these more integrated patterns produce more a more multipolar economy with a more equal distribution of city sizes (see Figure 1.1). Do multipolar trade patterns contribute to the economic vitality of smaller cities and towns? Does economic vitality of those smaller towns encourage multipolar trade to flourish?

In any case, there are appreciable differences in city distribution among the cases listed as "monopolar" and "multipolar" in Table 1.1. If one examines city size according to a modified rank-size methodology (cf. Chen, 2004, Gabaix, 1999)—associating the city's logged population rank with a logged population percentage measure[2]—those cases of conflict defined as falling in

[2] That is, for city i in region j, the index will is calculated $Index_{i,j} = Ln\left(1 + \frac{Population_i}{Population_{max,j}}\right)$ where $Population_{max,j}$ is the population of the largest city in the region. However, in this case, we replace $Population_i$ with $FeltPopulation_i$ where that is defined as $FeltPopulation_{ij} = Population_i / Epicenter_j$ and $Epicenter_j$ is the distance from city i to the conflict's epicenter. For cities across a national frontier, the result was further cut in half (except in the case of Iraq/Syria, where cities in each of those countries were treated as being in the same country, due IS' territory straddling the border). The normalized log felt population represents the log of the result, which is then divided by the logged result of the highest-ranking city in that particular conflict. All city information was obtained from ESRI's *World Cities* shapefile, version July 11, 2016, with the exception of Raipur, which had to be

the "multipolar" category clearly exhibit very different curves than the "monopolar" regions. This methodology produces curves that are specific to a geographic location representing the degree to which the city system "feels" (or is perceived to be) monopolar.[3] Figure 8.4 represents the top 15 cities for each of eight cases of armed conflict from Table 1.1. The conflicts in Nigeria involving Boko Haram, eastern Democratic Republic of Congo, and Maoist India all exhibit flatter curves, implying that secondary and primate cities will offer less attractive targets of capture. The conflicts in Iraq/Syria involving the Islamic State, Liberia, Nepal, Sierra Leone, and Somalia, by contrast, all exhibit more dramatically flexing downward curves. These indicate a more monopolar city system, a greater tendency for rural–urban trade profits to concentrate in higher-order cities, and a correspondingly greater incentive for the involved rebel groups to capture those cities.[4] It is no accident that the differences in flexion among these curves correspond to the qualitative categories in which the cases were placed in Table 1.1.

Second, the social structures that inform trade network morphology must themselves be historically informed. Klass (1980) hypothesizes that the Indian subcontinent's heterogeneous mix of ecological zones was particularly conducive to differentiated methods of food production, and resource extraction. He contends that the various tribal groups can be considered proto-jatis (proto-castes) which, as agricultural surplus developed and increased, were gradually rearranged in a hierarchical system. Tribal "closure," or cohesiveness, may have partly been a countervailing response to the numerous large-scale states spanning many ecological zones. If this narrative is accurate, then the establishment of the caste system equates to the "horizonalization" of what had essentially been, in Horowitz's terminology, a vertically cleaved society whose pillars had been linked geographically through trade. By

added to the former, along with its 2001 Census of India population. The epicenters of each conflict were defined as follows: the centroid of Kivu district for the Democratic Republic of Congo; IS headquarters of Raqqa for the Syria–Iraq conflict involving that organization; the intersection of Bastar, Dantewada, and Gadchiroli districts in Chhattisgarh for the Indian Maoist conflict; Gbarnga for the Liberian Civil War; Khatmandu for the Nepalese Maoist conflict; the centroid of Bornu state, Nigeria, for the Boko Haram conflict; Kenema for the Sierra Leone Civil War; and Kismayo for the conflict in Somalia with Al-Shabab. The nearest distance from those epicenters to cities within 1,000 km was obtained using ArcGIS software.

[3] One could, in theory, derive from such a curve a single fractional number—like the GINI coefficient, the ratio of the area between the curve and, say, the horizontal line $Y = ln(2)$, to the area under that same horizontal line. One might automate a way of calculating such a score to generate a predictor of rebel violence against civilians globally to test one of this book's contentions on a global scale.

[4] What this discussion neglects is the economic role of the cities concerned. Hoselitz (1955), for instance, placed great importance on the city as being either generative or parasitic—where cities in the former category benefit the hinterland by drawing on rural inputs for positive-sum industrial production, while those in the latter category draw down the savings of the hinterland through a zero-sum interaction over time.

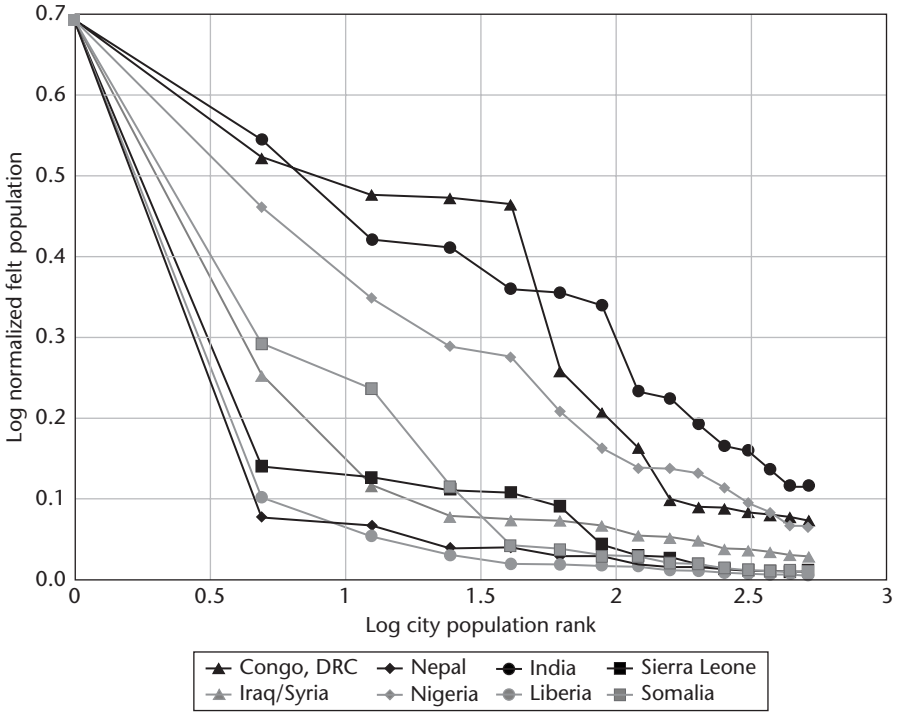

Figure 8.4 Selected conflict city systems in a modified rank-size chart.

contrast, Herbst (2000) argues that states in West Africa were traditionally limited in their capacity to exert coercive force because of a dry-land agricultural system that implied less sunk costs for farmers and therefore greater ease of mobility. There may then be a sense in which the stability of the modern Indian state benefits from foregoing political entities able to structure society in a way that persists over time—a social version of the political institutions narrative that Acemoglu et al. (2002) tell to explain long-run development trajectories.

8.3 Managing Coercive Violence

States exhibit varying levels of capacity to counter challenges to their monopolies on the legitimate use of coercive force. Realistically, a true monopoly is impossible, and the state will attempt to manage its competition. Its strategies for doing so are typically a combination of sticks, carrots, and norm-setting (for an internationalist take on these tools, see Koh, 2004). In terms of the first

two, the threat or actual use of military force, on the one hand, and the promise of public services, inter-government transfers, political offices or other handouts, on the other. The next section will address the use of mass violence as a state-identity process. First, though, this section will briefly address the use of carrots.

The Indian federal government has tried to promote rural welfare through a number of schemes. The Mahatma Gandhi National Rural Employment Guarantee Act of 2005 (MGNREGA) guarantees 100 days of minimum-wage labor per year to adult members of rural households. The Scheduled Tribes and Other Traditional Forest Dwellers Act (also called the Forest Rights Act) of 2006 meant to secure access to forests and their resources of those tribal people who have typically relied upon them for their livelihoods. Thousands of government-run cooperative marketing structures, among which are counted the wholesale market grain societies, or mandis, are meant to guarantee good prices for grains and special commodities in rural areas.

However, in practice, all of these schemes are manipulated at various levels of local government in practice, and many even enable the very insurgency they are supposedly designed to undermine. Traders interviewed for Chapter 7 cited how infrastructure projects that employed tribal people through the MGNREGA on the construction of local roads were only allowed to go forward outside of Naxal-held territory. If the argument I have made above is correct, the resulting better-networked rural towns would, among other things, give Naxal leaders better bargaining power vis-à-vis long-distance traders—and therefore more profit in controlling trade flows across the combat frontier.

The Forest Rights Act has also been perverted by powerful, often upper-caste interests in many ways. Bijoy (2010) has noted, for instance, that many claims filed under the act are arbitrarily rejected, land titles are unilaterally reduced in size without reason, community rights are routinely ignored, and the power the act confers upon Gram Sabhas (village-level governments) is often expropriated by higher levels of government. The implementation failures directly contribute to the spread of Naxalism itself. Naxal recruits interviewed for this book in Karnataka also explained how lawyers for large plantation holders often bullied them into a form of intergenerational bonded labor. The plantation owners would appropriate lien-compromised tribal agricultural land, and then report tribespeople trespassing on national park lands when they attempted to supplement their livelihood through gathering. Tribal access to land and commons diminishing, adivasis found Naxalism an appealing way to bully the plantation owners back (see Chapter 6).

Finally, as mentioned in Chapter 7, the high prices paid for grain and specialty commodities by government societies benefits Naxal outfits. Traders reported that as long as Naxals didn't show up in town dressed in their guerilla garb, they could sell the produce from their region. In effect, Naxals in border

areas may be directly subsidized by the government in its attempt to win rural populations over.

The carrot metaphor may not be quite right then. These government schemes may really be more like bones thrown to a dog—the dog won't bite you in the short term, but is nourished by them in the long term. "Development," then, may not be as effective a policy response to insurgency as plain old "good government" (Judith Tendler, 1998).

8.4 State Identity and Mass Violence

Production networks may serve to structure the process of differentiation and compartmentalization described in the introduction—designating the "Other" (the object of extensification) and the "Same" (the object of intensification) in the process of constructing or deconstructing a national identity (cf. Anderson, 1983). In this way, they arguably play a crucial part in transcending the duality of the question: Do forms of mass violence constitute the essence of modern civilization, or rather a "breakdown of civilization?" The dynamic of rural–urban trade that underpins the modern nation state may simultaneously generate and reject the possibility for mass violence (cf. de Swaan, 2001), but may generate different levels of stability depending on the social construction of the production networks involved.

Oftentimes, the state is able to straddle this polarity by outsourcing violent processes to lower levels of government, paramilitary groups, or private enterprise. Such outsourcing may be seen as necessary in overcoming the handicaps associated with respecting human rights and civilian well-being during asymmetric warfare (Karp, 2009). For instance, when the Indian Air Force contemplated air strikes to counter Naxal insurgents in Chhattisgarh, the Federal government was compelled to nix the idea, arguing that there is no practical way of distinguishing insurgents from ordinary citizens in forest areas (The Economic Times, 2009). Instead, the federal government continues to grant states immense discretion in setting their own agendas. The states, in turn, (as explained in Chapter 6) made extensive use of paramilitary forces—for instance, as many as 75,000 people were conscripted during Chhattisgarh's "Operation Green Hunt." They also harassed pro-tribal civil society groups like Himanshu Kumar's Vanvasi Chetna Ashram (razed by Chhattisgarh state police in May 2009)—even whilst high courts condemned them and the then-Congress government backed away from public shows of support (Kesavan, 2009). Until 2011 when the Indian Supreme Court declared such policies unconstitutional, Chhattisgarh openly supported vigilante militias like the Salwa Judum. In other cases, such as in Sierra Leone and Liberia, state military played a direct and prominent role in the commission of mass

atrocities—both in direct conflicts with rebel forces, and against their own civilian populations (Azam, 2006, Keen, 2003).

While a number of explanations have been, and might be, forwarded as to why states react differently to internecine military threats, it is tempting to wonder whether one factor is the nature of the rural–urban insurgency itself. That is, a state facing a rural-based rebel operation drawn to the metropole and capturing progressively larger towns and cities—the West African rebel movements described herein, for instance—may be seen to pose more of an existential risk to the modern, urban-based state. Chakravarti (2008) notes, by contrast, that despite the rapid expansion of the Naxal movement in the late 2000s, the fact that the areas captured remain largely "backward" and rural has guaranteed that literate, urbane Indians—those, in effect, most associated with the modern industrial state project—remained more or less ignorant of, and unconcerned with, the erosion of government control within the country's own heartland. Until, that is, a train is bombed or an iron-ore mining operation shut down. If this supposition is correct, the ironic implication is that the inequitable caste system, woven into the very fabric of the world's largest democracy, is partly responsible for the stability of its internal split and, by extension, the hypocrisy of its vicarious responses. On the other hand, the equal status between tribes in West African society may, vicariously through rural–urban trade networks, contribute to the region's instability and purposeful government participation in human rights abuses.

References

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *The Quarterly Journal of Economics*, 117(4): 1231–94.

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

Azam, Jean-Paul. 2006. "On Thugs and Heroes: Why Warlords Victimize Their Own Civilians." *Economics of Governance*, 7(1): 53–73.

Bijoy, C. R. 2010. "Taking Stock of [the] Forest Rights Act," *Planet Earth*. Hyderabad: Gateway Media, Pvt., Ltd., 6.

Chakravarti, Sudeep. 2008. *Red Sun: Travels in Naxalite Country*. New Delhi: Penguin Books.

Chen, Hsin-Ping. 2004. "Path-Dependent Processes and the Emergence of the Rank-Size Rule." *The Annals of Regional Science*, 38: 433–49.

de Swaan, Abram. 2001. "Dyscivilization, Mass Extermination and the State." *Theory, Culture and Society*, 18(2–3): 265–76.

Elias, Norbert. 2000 [1994]. *The Civilization Process: Sociogenic and Psychogenic Investigations*. Oxford: Wiley-Blackwell.

Esser, Daniel. 2004. "The City as Arena, Hub and Prey: Patterns of Violence in Kabul and Karachi." *Environment and Urbanization*, 16(2): 31–8.

Gabaix, Xavier. 1999. "Zipf's Law for Cities: An Explanation." *The Quarterly Journal of Economics*, 114(3): 739–67.

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

Horowitz, Donald. 2000. *Ethnic Groups in Conflict*. Berkeley: University of California Press.

Hoselitz, B. F. 1955. "Generative and Parasitic Cities." *Economic Development and Cultural Change*, 3: 278–94.

Karp, Aaron. 2009. "The Changing Ownership of War: States, Insurgencies and Technology." *Contemporary Security Policy*, 30(2): 375–94.

Keen, David. 2003. "'Since I Am a Dog, Beware My Fangs': Beyond a 'Rational Violence' Framework in the Sierra Leonean War." London: LSE/DESTIN Crisis States Programme.

Kesavan, Mukul. 2009. "Why the Green Hunt Rhetoric Rings So Hollow." *LiveMint.com and the Wall Street Journal*, October 2.

Klass, Morton. 1980. *Caste: The Emergence of the South Asian Social System*. Philadelphia: Institute for the Study of Human Issues.

Koh, Harold Hongjui. 2004. "Jefferson Memorial Lecture: Transnational Legal Process after September 11th." *Berkeley Journal of International Law*, 22: 337–54.

Lidow, Nicholai. 2016. *Violent Order: Rebel Organization and Liberia's Civil War*. Cambridge: Cambridge University Press.

Luttwak, Edward. 1994. "The Missing Dimension." In D. Johnston and C. Sampson, *Religion, the Missing Dimension of Statecraft*. New York: Oxford University Press, 350.

Tendler, Judith. 1998. *Good Government in the Tropics*. Baltimore: Johns Hopkins University Press.

The Economic Times. 2009. "You Can't Shoot Down Naxals, Govt Tells Iaf." *Times of India*, October 3.

Van Der Veer, Peter and Hartmut Lehmann. 1999. "Introduction," H. Lehmann, *Nation and Religion: Perspectives on Europe and Asia*. Princeton, NJ: Princeton University Press, 3–13.

9

Into an Urban World

9.1 From Dusk to Red Dawn

Hegel famously wrote in his preface to *Elements of the Philosophy of Right* that "the owl of Minerva begins its flight only with the onset of dusk" (2003 [1821], 23). It might be argued that, if this book adds to the general understanding of rural–urban conflicts, it arrives at the end—or at least the beginning of the end—of the historical period of their relevance. In a growing portion of the global South, civil wars are on the decline—with the Latin American and the Caribbean (LAC) region at the vanguard (see Figure 9.1, based on Uppsala Conflict Data Program, 2016).

However, in Latin American and Caribbean countries, rapid urbanization in the 1990s—much of it precipitated by the toll of earlier traditional civil wars—has transposed formerly rural–urban conflicts to cities, shifting their dynamics and creating new dilemmas (Rodgers, 2007). Across the region, urban settlement growth has outpaced the capacity of municipal governments to provide basic public services. Informal settlements have burgeoned, and large swathes of many cities have become characterized by informal, gang-administered, or "hybrid" governance (Willis, 2015, Jütersonke et al., 2009, Koonings and Kruijt, 2004, 2007, Rodgers, 2004). These urban-based criminal networks have globalized, facilitating and benefiting from illicit transnational trades. In this new urban world, cities may be more closely tied—whether in terms of information, goods, capital, or labor flows—to other cities across the globe than they are to their geographically proximate hinterlands. Jütersonke and Kartas (2015) go so far as to argue that the decoupling of urban economic centers from rural hinterlands in the global South implies that the state itself is nothing more than an urban myth.

This short, send-off chapter will examine the relevance of this book's central argument in the light of these trends. It will seek to draw tentative connections between the morphology of rural–urban conflict experienced and future trends in violence, with an eye toward the future of such urban challenges in

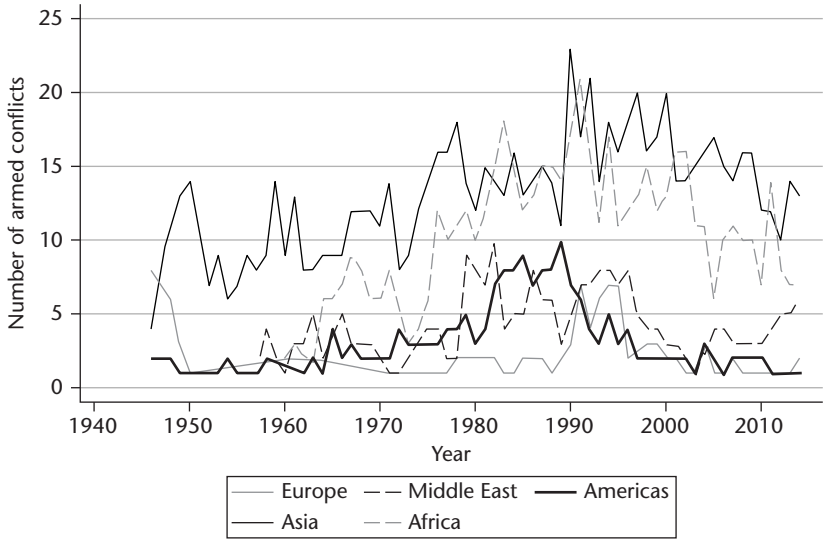

Figure 9.1 Incidence of non-internationalized internal ("civil") armed conflicts weighted by severity (low vs. high) and broken out by region, 1947–2014.
Source: Uppsala Conflict Data Program (2016).

now-urbanizing regions like sub-Saharan Africa. It will conclude with a brief rumination on the possible applicability of this argument to terrorist conflicts.

9.2 Through a Glass, Darkly

Latin American and Caribbean (LAC) countries and cities are at the vanguard of this new breed of urbanized conflict, as well as innovative forms of peacemaking and peacebuilding. The early 1990s witnessed the end of civil wars across the LAC region (aside from Colombia), but the intensity and scale of new forms of warfare—what many locally refer to as criminal conflicts—has continued to exceed all but the worst wars in Africa, the Middle East, and Asia.

A distinctive feature of the region is violence. UN statistics indicate that in 2012 there were 141,625 intentional homicides in LAC states (UNODC, 2013). These can be estimated to be about one third of all homicides in the world in 2012 (made more striking when compared with the LAC region's 9 percent share of global population). Violence in the region is sharply gendered, with close to 90 percent of the victims and perpetrators being male (and the greatest concentration of victims is aged 15–29). Even in Colombia, the one state in the region with a recognized civil war, the annual death toll from homicide far exceeds that of the warfare (Muggah, 2012b).

Today, many states and metropolitan regions in LAC states exhibit levels of intentional lethal organized violence that meet or exceed the traditional definitional violence thresholds of "civil war." For instance, the International Committee of the Red Cross and Red Crescent (ICRC) have field operations in the favelas of Rio de Janeiro since 2008, despite a mandate to operate in war zones. And the number of Mexican municipalities experiencing annual homicide rates exceeding 1 per 10,000 residents nearly doubled over the period 2007–12, jumping from 19 percent to 35 percent (Ferguson et al., 2016). But such urban violence is usually morphologically and functionally distinct from traditional warfare in that the perpetrators have not expressed a desire to change the borders or government of the states in which they operate.[1] Indeed, Mexican cartels rely heavily on government-provided transportation and communications infrastructure to coordinate drug shipments and to run the licit businesses—from extractives to agriculture (USA Today, 2014) and even rumored municipal contracts—that contribute to their increasingly diversified revenue streams. Nevertheless, this violence is carried out by well organized groups and often directed at political targets (such as assassinations of mayors), just as in traditional civil wars.

One logical question, then, is: to what extent can Latin America serve as a glimpse into the future of other regions, whether in terms of the changing nature of the violence they will have to contend with, or more optimistically in terms of the peacebuilding strategies and policy tools that are available to them? Factors such as rapid urbanization (Moser, 2004, Muggah, 2012b, Winton, 2004), increasing importance of gangs (Jütersonke, Muggah, and Rodgers, 2009, Seelke, 2014, Skaperdas and Syropoulos, 1995), and burgeoning illicit trades in narcotics (Ajzenman et al., 2014, Dell, 2012, Dube et al., 2014, Heinle et al., 2014, Robles et al., 2013, Shirk, 2011), arms (McDougal, 2015, McDougal et al., 2014, McDougal et al., 2015, Muggah, 2012a, 2013, UNODC, 2015), and humans (Carpenter and Gates, 2015) affect many parts of the developing world.

Africa in particular is urbanizing at astonishing rates, leaping from just 15 percent in 1960 to 40 percent in 2000 to a projected 60 percent by 2050 (Freire et al., 2014). Several regions and states already offer similar levels of violence as found in LAC, where high levels of organized violence exist in states not recognized as being at war, or where homicide far exceeds the direct

[1] One notable exception to this characterization is found in Haiti, in which one of the urban street gangs (the so-called "Cannibal Army" of Gonaïves) employed by then-President Aristide to maintain his office in the face of hostile police forces turned on Aristide and reinvented itself as a rebel army. Upon rebranding itself the "National Revolutionary Front for the Liberation and Reconstruction of Haiti" (FLRN), the group captured Gonaïves itself in February of 2004, and was joined by disaffected former-army and death squad commanders. The Front quickly captured the majority of the country before taking Port-au-Prince and precipitating Aristide's departure and exile (Belen Fernandez, 2012).

mortality caused by warfare in those states. These include much of sub-Saharan Africa (particularly South Africa) and Central Asia, and individual states such as Pakistan, Philippines, and Burma/Myanmar. The recent upheavals in the Middle East and North Africa (MENA) region also threaten to create in some states similar conditions of armed gangs, widespread weapons availability and persistently high homicide. In Latin America, ceasefires, gang truces (and more comprehensive peace agreements negotiated between armed groups and government), humanitarian mediation, reforms to educational and justice systems, and urban disarmament, demobilization, and reintegration (DDR) programs are among the multiple unconventional peace practices involving criminal groups (rather than parties involved in recognized warfare).

9.3 Back to the Future

More germane to the subject of this book, however, is whether the form of rural–urban conflict bears on future urbanized violence in any way. Without giving definitive answers to this question, I would like to sketch out a few ways in which this might occur. The first one has already been hinted at: combat frontiers that are less well-defined will likely imply more negative humanitarian effects of the conflict, since civilians may be unaware of where fighting is taking place. We might expect that such negative impacts would generally raise rates of urbanization and place more stress on receiving municipalities to provide adequate services, as well as jobs to sop up the excess urban labor supply.

Second, we might also expect that cities serving as connections in radial (monopolar) city systems will tend to urbanize faster than others. Here again, hyper-urbanization might be considered a possible mediating variable between previous rural–urban conflict and future urban violence. For instance, in Liberia, the central and highly targeted capital city of Monrovia grew by fivefold between 1974 and 2008 (the only years for which we have census data)—three times more than the growth factor for the country as a whole (see Table 9.1). Moreover, Ganta and Gbarnga—both cities that serve as central hubs connecting Monrovia to "upcountry" Liberia (Nimba and Grand Gedeh counties in the former case; those plus Bong and Lofa counties in the latter case)—had even higher rates of growth for that same period. Meanwhile, the dilapidatedly elegant beachside town of Robertsport, its location near the notorious border with Sierra Leone notwithstanding, was unimportant in funneling goods to and from the capital, off the beaten warpath, and actually grew at a rate slower than that of the country as a whole.

A third way that the form rural-conflict takes might influence future urban violence is more qualitative. In a vertically cleaved society with rural–urban

Table 9.1 Population figures for Liberian cities, 1974 and 2008

Name	Population		Ratio:
	1974	2008	2008–1974
Gbarnga	7,220	56,986	7.89
Ganta	6,356	42,077	6.62
Monrovia	204,210	1,021,762	5.00
Zwedru	6,094	25,349	4.16
Pleebo (Plibo)	6,315	23,464	3.72
Kakata	9,992	34,608	3.46
Voinjama	6,343	15,269	2.41
Harper	10,627	23,517	2.21
Harbel	11,445	25,309	2.21
Buchanan	23,999	50,245	2.09
Sanniquellie	6,690	11,854	1.77
Greenville	8,462	13,370	1.58
Robertsport	2,562	3,515	1.37
Zorzor	4,752	5,577	1.17
Cesstos City (River Cess)	2,041	2,389	1.17
Tubmanburg	14,089	14,576	1.03
Barclayville	...	3,108	...
Bopolu	...	2,912	...
Fish Town	...	3,566	...
Foya	...	20,569	...
Karnplay (Kahnple)	...	5,585	...
Sacleapea (Sagleipie)	...	13,790	...
Liberia	**2,101,628**	**3,476,608**	**1.65**

Source: http://www.citypopulation.de/Liberia.html.

trade networks that have homogenized in response to armed conflict (as illustrated in the lower portion of Figure 8.1), the urban production centers themselves may paradoxically become quite ethnically cosmopolitan. Urban-based traders of varied ethnic backgrounds in fact often have an economic incentive to work well together as equals—for example, when queuing at a factory for goods that they will distribute in various hinterlands. "Equal status" and "mutual benefit" are two of the criteria included by seminal psychological theorist Gordon W. Allport (1954) necessary to ensure the functioning of the "contact hypothesis"—the notion that greater contact with members of different groups can boost empathy, and thereby relations, between different ascriptive identity groups. Urban business-based interethnic interactions can build trust and even personal relationships (often referred to as "bridging social capital" (Varshney, 2002)), though they may not reduce prejudicial stereotyping of out-groups (Kilroy, 2011).

The forging of new cosmopolitan social identities that may occur among traders and other businesspeople in conflict-affected cities is perhaps a spark of hope in an otherwise dreary social scene. The overall effect of armed violence may strain social relations between cities and rural areas (even if, as Chapter 4 argued, conflict may boost the relative degree to which urban industry draws

on domestically sourced rural products). Cities like Freetown, Sierra Leone, and Monrovia, Liberia continue to host ex-combatants who have been disembedded from their rural communities (Keen, 2003) and endure high rates of unemployment. These cities have even been compared to giant barracks, geared to nothing so well as the rapid mobilization of disgruntled and potentially violent youth (Hoffman, 2007). Those exposed to wartime violence seem to develop greater in-group trust and cooperation, but also possibly experience an erosion of out-group trust (Bauer et al., 2016, Bellows and Miguel, 2008) and the sorts of "vertical" social capital that can link local village leaders to authorities in capital cities. For instance, rural communities in postconflict Mozambique that experienced high levels of violence during that country's civil war are today more likely to have developed community agricultural cooperatives, but are less likely to have successfully petitioned the central government to block concessions of local agricultural lands to corporate interests—possibly due to an erosion of such vertical channels of communication (McDougal and Caruso, 2016). Such vertical linkages may also be important conduits of knowledge (going "up" to higher government levels) and resources (going "down" to address local needs) in the event of a humanitarian emergency (Kruks-Wisner, 2011). As such, past violence may erode future local community resilience. Harnessing the ability of urban-based traders to access both urban institutions (sometimes across ethnic lines) and their local communities may represent an important policy tool for postconflict governments in vertically cleaved societies.

On the other hand, in horizontally cleaved (i.e. hierarchical) societies experiencing conflict, cities will not necessarily have served as crucibles of egalitarian economic interaction among traders. Such cities may be firewalled against rural violence due to the delineated combat frontier that such hierarchical social arrangements afford, but such protection may go hand in hand with a preservation of unequal relations amongst the trading classes, even in supposedly cosmopolitan settings.

9.4 Do Not Go Gentle

The fact that the world population is urbanizing rapidly does not necessarily imply that rural areas will not continue to be important sources of agricultural and extractive products; rather the reverse. The economic relationship between rural and urban areas will then continue to bear on the prospects for, and morphology of, violent conflict related to such extraction. To pick up on the intensification–extensification dialectic (elaborated in Chapter 2), industrial and postindustrial efficiencies always incite new and different forms of rural extraction. To take one example, the rise of electronic means

of communication has reduced the per capita demand for paper. Simultaneously, it has dramatically increased the demand for tungsten, tantalum, and other extractive metals and minerals used in mobile phones and other devices, and implicated in armed conflict in the Democratic Republic of Congo and neighboring states. Another example comes from innovations in electric vehicles, which reduce the demand for petroleum, but rely on lithium ion batteries, thereby boosting tin, zinc, lead, antimony, and lithium extraction in South America and elsewhere (Valle and Holmes, 2013). Lithium extraction in particular has been highlighted as a potential cause of future violence in Bolivia (Carbonnier and Zamora, 2013).

Relatively smaller populations in future rural areas may imply that insurgent groups will rely more heavily on foreign recruits than in previous periods to maintain adequate strength in numbers. But this development is more of a change in degree rather than in kind—certainly Lord Byron was not the first person ideologically motivated to fight and die for an insurgency in a foreign land. And those motivated to fight by more worldly concerns—mercenaries—are as old warfare itself (Maddison, 2007).

To say that civil wars are on the decline is not the same as to say that rural–urban conflicts are on the decline. Figure 9.2 (based on Uppsala Conflict Data Program, 2016) illustrates that whilst civil ("internal") wars are indeed declining from their peak in the early 1990s, the incidence of "internationalized internal" armed conflicts—those conflicts involving non-state armed actors and multiple national governments—is sharply rising. That rise alone is pushing the total number of armed conflicts to levels not seen since the late 1990s. Many of these "internationalized" conflicts are characterized by distinctly rural–urban dimensions and, often, the involvement of groups branded terrorists by the international community: the Taliban in the federally administered tribal areas (FATA) of Pakistan and southeastern Afghanistan; al-Shabab in southern Somalia, northern Kenya, and southern Ethiopia; the Islamic State in Syria and Iraq; and Boko Haram in northern Nigeria, Cameroon, and southeastern Niger.

The number of terrorism-related deaths across the globe rose to 32,685 in 2014—an 80 percent increase over 2013 (IEP, 2015), which already represented a 61 percent increase over 2012 (IEP, 2014). Explanations of terrorism akin to the famous argument that the contemporary era is one marked by a "clash of civilizations" (Samuel P. Huntington, 1998) leave most economists dissatisfied. For instance, the controversial article "What ISIS Really Wants" (Wood, 2015) contends that ISIS's organizational goals are intimately linked to its collective reading of the Qur'an, and that attempting to decouple the group from the Islamic faith tradition deprives policymakers of important analytical tools for understanding and combatting the group's tactics. The article provoked a progressive backlash (Dagli, 2015, Jenkins, 2015, Moghul,

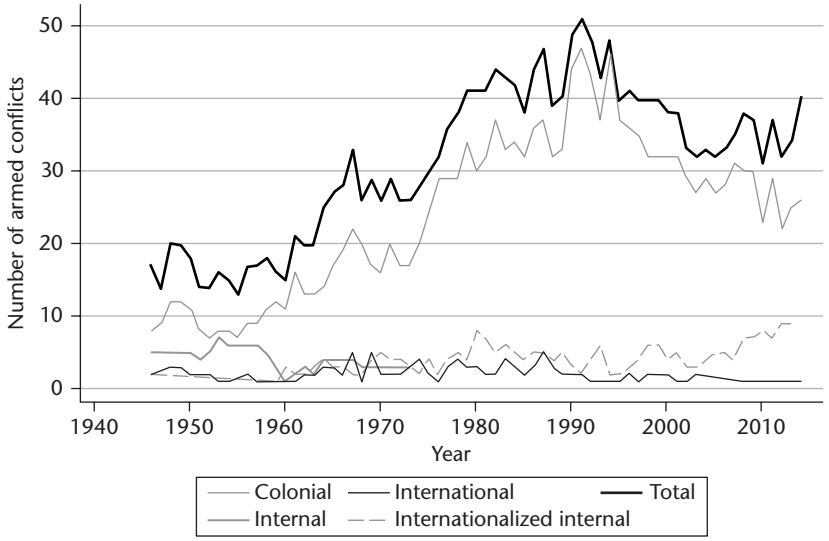

Figure 9.2 Incidence of armed conflict globally weighted by severity (low vs. high) and broken out by conflict type, 1947–2014.
Source: Uppsala Conflict Data Program (2016).

2015, Wood, 2015, Wright, 2015) generally arguing that ISIS was distinctly un-Islamic in its beliefs and actions. Lacking in much of the back-and-forth on the issue was the nub that most economists would care about: why do people support and join the group? In any society, extremist ideas will be woven together from strands in the cultural milieu. But whether those ideas remain relegated to a cultural backwater or attract recruits may have much more to do with social, economic, and political structures of the societies in which the message is promulgated. Those aspects may indeed affect opportunity costs of recruits (Collier et al., 2006), but also prospects for social recognition (an idea that Veblen (1931 [1899]) was deeply interested in).

Rural–urban linkages are likely to be very germane to the new breed of terrorist organization, even if such organizations may not target primate cities with the intention of conquering them. More recent understandings of terrorism do not treat the phenomenon as ontologically distinct from rebel movements. Rather, it is argued that terrorism is a form of insurgency in which the non-state actor has few military resources relative to the government(s) of the countries in which they operate, and is therefore unable to conquer or hold territory (Polk, 2008). In this view, the groups mentioned above may represent some hybrid form of insurgency, both holding (or just holding sway in) a rural territory, as well as carrying out attacks elsewhere. The effectiveness of the group as a terrorist organization may well depend on the integrity of its rural territorial base for training purposes, and for maintaining

organizational norms, coherence, and hierarchy. Products sourced in rural areas, whether in geographically dispersed or concentrated operations, will still need to find their way to urban areas if they are to generate revenue for the group. Just as importantly, urban products required for group members and locals alike must be brought in—from foodstuffs to arms and ammunition. The same rural–urban dynamics described previously as bearing on the directionality and morphology of combat frontiers in the cases of insurgencies in West Africa and India may then bear on contemporary terrorist conflicts as well.

References

Ajzenman, Nicolas, Sebastian Galiani, and Enrique Seira. 2014. "On the Distributed Costs of Drug-Related Homicides." *Working Paper Series*. Washington, DC: Center for Global Development.

Allport, Gordon W. 1954. *The Nature of Prejudice*. Cambridge, MA: Perseus Books.

Bauer, Michael, Christopher Blattman, Julie Chytilová, Joseph Henrich, Edward Miguel, and Tamar Mitts. 2016. "Can War Foster Cooperation?" *Journal of Economic Perspectives*, 30(3): 249–74.

Bellows, John and Edward Miguel. 2008. "War and Local Collective Action in Sierra Leone." *Journal of Public Economics*, 93(11–12): 1144–57.

Carbonnier, Gilles and Elizabeth Jiménez Zamora. 2013. "Can Lithium Energize Sustainable Development in Bolivia? Institutional and Policy Challenges." *Journal of Environmental Science and Engineering*, B2: 521–6.

Carpenter, Ami and Jaime Gates. 2015. "Measuring the Nature and Extent of Gang Involvement in Sex Trafficking in San Diego." San Diego: University of San Diego/ Point Loma Nazaren University.

Collier, Paul, Anke Hoeffler, and Dominic Rohner. 2006. "Beyond Greed and Grievance: Feasibility in Civil War." *Centre for the Study of African Economies Working Paper Series*. Oxford: Oxford University.

Dagli, Caner K. 2015. "The Phony Islam of Isis," *The Atlantic*, February 27.

Dell, Melissa. 2012. "Trafficking Networks and the Mexican Drug War." Unpublished manuscript. http://scholar.harvard.edu/files/dell/files/121113draft_0.pdf (accessed November 30, 2016).

Denyer Willis, Graham. 2015. *The Killing Consensus: Police, Organized Crime, and the Regulation of Life and Death in Urban Brazil*. Oakland: University of California Press.

Dube, Oeindrila, Omar García-Ponce, and Kevin Thom. 2014. "From Maize to Haze: Agricultural Shocks and the Growth of the Mexican Drug Sector." *Working Paper Series*. Washington, DC: Center for Global Development.

Ferguson, Neil T., Maren M. Michaelsen, and Topher L. McDougal. 2016. "From Pax Narcótica to Guerra Pública: Explaining Civilian Violence in Mexico's Illicit Drug War." In C. H. Anderton and J. Brauer, *Economic Aspects of Genocide, Mass Killing, and Their Prevention*. New York: Oxford University Press.

Fernandez, Belen. 2012. "Paramilitarism and the Assault on Democracy in Haiti." Al-Jazeera, October 4, 2012. http://www.aljazeera.com/indepth/opinion/2012/09/201293072613719320.html (accessed October 29, 2016).

Freire, Maria E., Somik Lall, and Danny Leipziger. 2014. *Africa's Urbanization: Challenges and Opportunities*. Washington, DC: The Growth Dialogue.

Hegel, Georg Wilhelm Fredrich. 2003 [1821]. "Elements of the Philosophy of Right." Cambridge: Cambridge University Press.

Heinle, Kimberly, Octavio Rodriguez Feirrera, and David A. Shirk. 2014. *Drug Violence in Mexico: Data and Analysis through 2013*. San Diego, CA: Justice in Mexico Project, University of San Diego.

Hoffman, Danny. 2007. "The City as Barracks: Freetown, Monrovia, and the Organization of Violence in Postcolonial African Cities." *Cultural Anthropology*, 22(3): 400–28.

Huntington, Samuel P. 1998. *The Clash of Civilizations and the Remaking of World Order*. New York: Simon & Schuster.

IEP. 2014. "Global Terrorism Index 2014." Sydney: Institute for Economics and Peace.

IEP. 2015. "Global Terrorism Index 2015." Sydney: Institute for Economics and Peace.

Jenkins, Jack. 2015. "What the Atlantic Gets Dangerously Wrong About Isis and Islam." *ThinkProgress*. February 18, 2015. https://thinkprogress.org/what-the-atlantic-gets-dangerously-wrong-about-isis-and-islam-820a18946e97#.cvt3fdxox (accessed October 29, 2016).

Jütersonke, Oliver and Moncef Kartas. 2015. "The State as Urban Myth: Governance without Government in the Global South." R. Schuett and P. M. R. Stirk, *The Concept of the State in International Relations: Philosophy, Sovereignty, Cosmopolitanism*. Edinburgh: Edinburgh University Press.

Jütersonke, Oliver, Robert Muggah, and Dennis Rodgers. 2009. "Gangs, Urban Violence and Security Interventions in Central America." *Security Dialogue*, 40(4): 1–25.

Keen, David. 2003. "'Since I Am a Dog, Beware My Fangs': Beyond a 'Rational Violence' Framework in the Sierra Leonean War." London: LSE/DESTIN Crisis States Programme.

Kilroy, Austin. 2011. *Business Bridging Ethnic Identity*. Cambridge, MA: Department of Urban Studies & Planning, Massachusetts Institute of Technology.

Koonings, Kees and Dirk Kruijt (eds). 2004. *Armed Actors: Organised Violence and State Failure in Latin America*. New York: Palgrave Macmillan.

Koonings, Kees and Dirk Kruijt. 2007. "Fractured Cities, Second Class Citizenship, and Urban Violence." In K. Koonings and D. Kruijt, *Fractured Cities: Social Exclusion, Urban Violence, and Contested Spaces in Latin America*. New York: Zed Books, 1–22.

Kruks-Wisner, Gabrielle. 2011. "Seeking the Local State: Gender, Caste, and the Pursuit of Public Services in Post-Tsunami India." *World Development*, 39(7): 1143–54.

Maddison, Angus. 2007. *Contours of the World Economy, 1–2030 Ad: Essays in Macroeconomic History*. Oxford: Oxford University Press.

McDougal, Topher L. 2015. "Estimating the Size of the Illicit Small Arms Economy in San Diego." *SADO Working Paper Series*. San Diego: Small Arms Data Observatory.

McDougal, Topher L. and Raul Caruso. 2016. "Is There a Relationship between Wartime Violence and Postwar Agricultural Development Outcomes? The Case of Concessions and Community Grants in Mozambique." *Political Geography*, 50: 20–32.

McDougal, Topher L., Athena Kolbe, Robert Muggah, and Nicholas Marsh. 2014. "Ammunition Leakage from Military to Civilian Markets: Market Price Evidence from Haiti, 2004–2012." *SADO Working Paper Series*. San Diego: Small Arms Data Observatory.

McDougal, Topher L., David A. Shirk, Robert Muggah, and John H. Patterson. 2015. "The Way of the Gun: Estimating Firearms Traffic across the U.S.–Mexico Border." *Economic Geography*, 15(2): 297–327.

Moghul, Haroon. 2015. "The Atlantic's Big Islam Lie: What Muslims Really Believe About Isis." Salon, February 19. http://www.salon.com/2015/02/19/the_atlantics_big_islam_lie_what_muslims_really_believe_about_isis/ (accessed November 30, 2016).

Moser, Caroline. 2004. "Urban Violence and Insecurity: An Introductory Roadmap." *Environment and Urbanization*, 16(2): 3–16.

Muggah, Robert. 2012a. "The Enemy Within: Arms Availability in Africa." J. Piombo, *Future Threats in Africa*. New York: Routledge.

Muggah, Robert. 2012b. "Researching the Urban Dilemma: Urbanization, Poverty and Violence." Ottowa: IDRC.

Muggah, Robert. 2013. "Tracking Effects of Small Arms and Light Weapons." In P. Batchelor and K. Kenkle. *Controlling Small Arms: Consolidation, Innovation and Relevance in Research Policy*. New York: Routledge.

Polk, William R. 2008. *Violent Politics: A History of Insurgency, Terrorism, and Guerilla War, from the American Revolution to the Iraq*. New York: Harper Perennial.

Robles, Gustavo, Beatriz Magloni, and Gabriela Calderón. 2013. "The Economic Costs of Drug-Trafficking Violence in Mexico." *Working Paper Series*. Stanford, CA: Stanford University.

Rodgers, Dennis. 2004. "Disembedding the City: Crime, Insecurity, and Spatial Organisation in Managua, Nicaragua." *Environment and Urbanisation*, 16(2): 113–24.

Rodgers, Dennis. 2007. "Slum Wars of the 21st Century: The New Geography of Conflict in Central America." *Crisis States Research Centre Working Papers*. London: London School of Economics.

Seelke, Clare Ribando. 2014. "Gangs in Central America." *CRS Reports for Congress*. Washington, DC: Congressional Research Service.

Shirk, David A. 2011. "Transnational Crime, U.S. Border Security, and the War on Drugs in Mexico." Sub-Committee on Oversight, Investigations, and Management, Chairman: Hon. Michael McCaul. Washington, DC: United States Department of Homeland Security.

Skaperdas, Stergios and Constantinos Syropoulos. 1995. "Gangs as Primitive States." In G. Florentini and S. Peltzman, *The Economics of Organized Crime*. Cambridge: Cambridge University Press.

UNODC. 2013. *Global Study on Homicide*. Vienna: United Nations Office on Drugs and Crime.

UNODC. 2015. "UNODC Study on Firearms 2015: A Study on the Transnational Nature of and Routes and Modus Operandi Used in Trafficking in Firearms." Vienna: United Nations Office on Drugs and Crime.

Uppsala Conflict Data Program. 2016. "Active Conflicts since WWII." Uppsala: Uppsala Universitet.

USA Today. 2014. "Drug Cartel Makes More Mining Than Trafficking." *USA Today*, March 17.

Valle, Valeria Marina and Héctor Cueto Holmes. 2013. "Bolivia's Energy and Mineral Resources Trade and Investments with China: Potential Socioeconomic and Environmental Effects of Lithium Extraction." *Latin American Policy*, 4(1): 93–122.

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

Veblen, Thorstein. 1931 [1899]. *The Theory of the Leisure Class: An Economic Study of Institutions*. New York: Viking Press.

Winton, Alisa. 2004. "Urban Violence: A Guide to the Literature." *Environment and Urbanization*, 16(2): 165–83.

Wood, Graeme. 2015. "What Isis Really Wants." *The Atlantic*, March. http://www.theatlantic.com/magazine/archive/2015/03/what-isis-really-wants/384980/ (accessed October 29, 2016).

Wright, Robert. 2015. "The Clash of Civilizations That Isn't." *The New Yorker*, February 25, 2015.

APPENDIX A

Supply-Chain Management in a Predatory Environment

Supply Chain Management (SCM) is typically conceived as the process of integrating three components of the supply chain, or production network: supply, production, and distribution. It is intuitively obvious that in the long-run, the amount of finished goods a firm distributes cannot exceed the amount it produces, nor can the amount produced exceed the amount sourced. Expressed symbolically:

$$S \geq P \geq D, \tag{A.1}$$

where S is the amount of material successfully supplied to the production process, P is the amount of material successfully processed during production, and D is the amount successfully distributed as final goods. Furthermore, it is intuitively clear that the long-run Pareto optimal solution for a profit-maximizing firm will be to set all components at par with one another:

$$S = P = D. \tag{A.2}$$

In this way, the firm is neither sourcing more than it can process, nor processing more than it can distribute. This is an important, if obvious, point, when revenue is only generated upon distribution.

If we now assume for the sake of simplicity that the amounts of materials successfully supplied, processed and distributed are linear functions of combined material and labor inputs (s, p, d respectively, which firms choose) and production coefficients (σ, π, δ respectively, which firms are assumed for the moment to take), then we may define the Pareto optimal equation in 8 as:

$$s\sigma = p\pi = d\delta, \text{where } s + p + d \leq 1, \text{ and } (0,0,0) \leq (s,p,d) \leq (1,1,1). \tag{A.3}$$

Unconstrained, this equation simply tells us that in Pareto optimality, (s, p, d) vary with the inverse of (σ, π, δ).

If we now consider the productivity coefficient to be the multiplicative product of a technological parameter measuring productivity and a measure of freedom from the risk of predation (A_i and ρ_i, where $0 \leq \rho_i \leq 1$),[1] we get the following equation:

[1] The described function for each supply chain component now begins to resemble a Cobb-Douglass production function of the form $Y = AL^{\alpha}K^{\beta}$, except for the addition of ρ_i to model the risk

$$sA_S\rho_S = pA_P\rho_P = dA_D\rho_D, \text{ where } (0,0,0) \leq (s,p,d) \leq (1,1,1). \tag{A.4}$$

If we now allow that firms recognize that dispersed economic activity decreases predation, we can see that firms do not take (σ, π, δ) unequivocally, but rather can disperse their activities spatially and temporally to raise the production coefficients.[2] Alternatively, the firm can choose to shift its expenditure on capital and/or labor. To see this, we can reasonably posit that the chance that an input will escape predation may be expressed as an increasing function of the measure of dispersal of economic activity ((G,H,I) for activities (S,P,D) respectively) and a decreasing function of the efforts to predate or to "tax" goods by rebels, government or civilians (r_i):

$$\rho_i = \frac{(G,H,I)}{r_i + (G,H,I)} \text{for } i = (S,P,D), \tag{A.5}$$

where $(0,0,0) \leq (G,H,I) \leq (1,1,1)$ and $s+p+d+G+H+I \leq 1$.

Given the form of (11), the value of ρ_i is bounded between zero and unity. Since we have established that (G,H,I) are associated with opportunity costs and diseconomies of scale, they can in essence be treated factors of production. Treating r_i as a constant and abbreviating the production functions as $f(s,G)$, $f(p,H)$, and $f(d,I)$, we might construct cost equations to be minimized:

$$\left.\begin{array}{ll} min_{S,G}\ Cost_{supply} = s\varphi + G\gamma & \text{such that} \\ min_{S,G}\ Cost_{production} = p\chi + H\eta & f(s,G) = f(p,H),\ f(p,H) = \\ min_{S,G}\ Cost_{distribution} = d\psi + I\iota & f(d,I),\ f(s,G) = f(d,I), \\ & \text{and } s+p+d+G+H+I \leq 1 \end{array}\right. \begin{array}{l} \\ \text{(A.6a)} \\ \text{(A.6b)} \\ \text{(A.6c)} \end{array}$$

In these cost equations, (φ, χ, ψ) represent the marginal costs of the supply chain inputs (e.g., wages and rents in the case of labor and capital), whereas (γ, η, ι) represent the marginal costs of economic activity dispersal in each component. Given the constraints, we can write the Lagrangian function for the supply component as follows:

$$\begin{aligned} \mathfrak{L}(s, G, \lambda_1, \lambda_2, \lambda_3) = {} & s\varphi + G\gamma - \lambda_1[f(p,H) - f(s,G)] - \lambda_2[f(d,I) - f(p,H)] \\ & -\lambda_3[f(d,I) - f(s,G)] - \lambda_4(s+p+d+G+H+I-1), \end{aligned} \tag{A.7}$$

which will have the first order conditions:

$$\frac{\partial \mathfrak{L}}{\partial s} = \varphi + \lambda_1 f_s + \lambda_3 f_s - \lambda_4 = 0, \tag{A.8a}$$

$$\frac{\partial \mathfrak{L}}{\partial G} = \gamma + \lambda_1 f_G + \lambda_3 f_G - \lambda_4 = 0, \tag{A.8b}$$

$$\frac{\partial \mathfrak{L}}{\partial \lambda_1} = f(s,G) - f(p,H) = 0, \tag{A.8c}$$

of predated inputs, the combination of the labor and capital terms in one, and the exclusion of the input elasticities as exponents.

[2] Firms also recognize that choosing high-value inputs in any process heightens the risk of predation, and so may try to substitute low-value inputs into each process.

$$\frac{\partial \mathfrak{L}}{\partial \lambda_2} = f(p,H) - f(d,I) = 0, \tag{A.8d}$$

$$\frac{\partial \mathfrak{L}}{\partial \lambda_3} = f(s,G) - f(d,I) = 0, \text{and} \tag{A.8e}$$

$$\frac{\partial \mathfrak{L}}{\partial \lambda_4} = s + p + d + G + H + I - 1 = 0. \tag{A.8f}$$

Equations A.8c–A.8f simply represent the production constraints. A.8a and A.8b can be rearranged to show that the minimum cost will occur when the marginal cost of output due to increasing inputs and dispersal are at parity:

$$\frac{\varphi}{f_s} = -\lambda_1 - \lambda_3 = \frac{\gamma}{f_G}. \tag{A.9a}$$

The same operation can be performed for the other two supply chain components to yield:

$$\frac{\chi}{f_p} = \lambda_1 - \lambda_2 = \frac{\eta}{f_H}, \text{ and} \tag{A.9b}$$

$$\frac{\psi}{f_d} = \lambda_2 + \lambda_3 = \frac{\iota}{f_I}. \tag{A.9c}$$

These in turn can be rearranged to imply that the summed marginal costs of output for inputs in all supply chain components is equal to zero at optimality:

$$\frac{\varphi}{f_s} + \frac{\chi}{f_p} + \frac{\psi}{f_d} = 0 = \frac{\gamma}{f_G} + \frac{\eta}{f_H} + \frac{\iota}{f_I}. \tag{A.10}$$

It may also be helpful to recall Equations 14a and 14b in their expanded forms:

$$\frac{\partial \mathfrak{L}}{\partial s} = \varphi + \lambda_1 \left[A_S \left(\frac{G}{r_s + G} \right) \right] + \lambda_3 \left[A_S \left(\frac{G}{r_s + G} \right) \right] - \lambda_4 = \varphi + \left(\frac{A_s G}{r_s + G} \right) (\lambda_1 + \lambda_3) - \lambda_4 = 0, \tag{A.11a}$$

and

$$\begin{aligned} \frac{\partial \mathfrak{L}}{\partial G} &= \gamma - \lambda_1 \left[s A_S r_S \left(\frac{1}{(r_s + G)^2} \right) \right] + \lambda_3 \left[s A_S r_S \left(\frac{1}{(r_s + G)^2} \right) \right] - \lambda_4 \\ &= \gamma - \left(\frac{s A_s r_S}{(r_s + G)^2} \right) (\lambda_1 - \lambda_3) - \lambda_4 = 0. \end{aligned} \tag{A.11b}$$

In words, greater investment in sourcing production factors (capital and labor) may be precipitated by (1) increasing marginal input costs, (2) rising technological sourcing productivity, (3) greater investment in dispersal, (4) falling efforts to predate goods, (5) greater importance of the disjuncture between supply and production, and supply and distribution, and (6) falling importance of the budget constraint. Likewise, greater investment in dispersal may be associated with (1) greater marginal dispersal costs,

(2) falling investment (or inability to invest further) in inputs, (3) falling technological productivity, (4) rising efforts to predate goods, (5) greater importance of the disjuncture between supply and production, and (6) falling importance of the disjuncture between supply and distribution and of the budget constraint. Notice, then, that rising predation in the supply chain is inversely related to investment in the supply process (e.g., hiring truck drivers). Therefore, the rate at which predation decreases such investment diminishes as predation rises. That is, the response is sharpest at the onset of predation, less as it worsens. The effect of predation on dispersal investment is more equivocal. Dispersal investment (e.g., paying more petty traders) will tend to grow with more predation (again diminishing at higher levels of predation) if it is more important to maintain the sync between supply and distribution than it is between supply and production. However, dispersal investment will tend to shrink with predation if it is more important to main the sync between supply and production than between supply and distribution. The former would tend to be the case when the inputs are relatively valuable, the latter when the inputs are relatively low-value.

APPENDIX B

Multiplication of Trade Routes

If we take only the supply chain side of the production network, then the number of trade routes in peacetime, T_{pt}, necessary to service f production firms from s raw materials suppliers, by way of p processing plants may be described as

$$T_{pt} = fp + p\frac{s}{p} = fp + s.$$

During wartime, however, the number of trade routes T_{wt} may be described as

$$T_{wt} = fs.$$

Clearly, the difference between the two scenarios, Δ_{wt-pt}, is

$$\Delta_{wt-pt} = T_{wt} - T_{pt} = fs - fp - s. \tag{B.1}$$

This equation may easily be partially differentiated to show that

$$\frac{\partial(\Delta_{wt-pt})}{\partial p} = -f, \tag{B.2}$$

$$\frac{\partial(\Delta_{wt-pt})}{\partial f} = s - f, \text{and} \tag{B.3}$$

$$\frac{\partial(\Delta_{wt-pt})}{\partial s} = f - 1. \tag{B.4}$$

Equation B.2 shows that as the number of processing facilities declines by one, the number of trade routes in the system will rise by the number of firms, f. This represents the rise in inefficient trading linkage in war, due to the need to stay free from predation. Note that the model would apply even in the absence of actual intermediary processing—for instance, in the case in which small towns merely serve as way stations that coordinate the collection of rural-produced exports and facilitate "breaking bulk" of import shipments. That is, there are more trade routes, but they may less frequently find a nexus in the small towns that link industrial centers with rural production in conflict-affected areas.

APPENDIX C

Methodology and Regression Tables for Chapter 5

C.1 Dataset Generation

The survey referred to in Chapter 5 contains 434 separate households. The original survey contained roughly three times as many individual responses, but the specific focus of this work demanded that I collapse the data by household, taking the head of the household as the unit of analysis. Table C.1 presents the breakout of survey respondents by profession (that is, trader versus other) and country. It is clear that the number of "successes"—people whose primary occupation is that of trader—is very low, and as a rule of thumb, the degrees of freedom allow in a regression model is given by *successes*/10−1. In this case, the rule implies that just one predictor may be used (though I push this to two when introducing fixed effects at the district level).

I began preparing my dataset by creating a GIS and assigning geographic coordinates to all survey respondents, whose responses constitute the dependent variable and personal and demographic information. I also created a point shapefile representing all wartime incidents described in the Political Instability Task Force (PITF) Worldwide Atrocities Dataset for the two countries (N = 59). Those incidents with unclear coordinates were assigned to specific coordinates using PITF or corroborating descriptions of event locations. I then added the major cities and transportation networks of the Mano River Basin states (Guinea, Sierra Leone, Liberia, and Côte d'Ivoire).[1]

Next, I set about deriving a number of possible geographic independent and control variables at the village (cluster) level. Road access included three variables: the number of road junctions within 20 kilometers of the village, the distance of the closest road junction, and the average distance of all road junctions within 20 kilometers. The first of these in particular—the logged number of road junctions—I have described in Chapter 3 as a proxy for the degree of potential production network dispersal in a given location. The closest cities were determined via a "closest facility" network analysis, as was the distance from any given location to the nearest international border. It should be reiterated here, however, that the dispersal hypothesis cannot

[1] The road layer was authored by ML InfoMap, Pvt. Ltd. for 2002. The geographic place names layer from which I derived city locations was authored by the U.S. National Imagery and Mapping Agency (NIMA) for 2003. All GIS files were made available through MIT's geospatial web.

Table C.1 Cross-tabulated frequencies of survey respondents by trader by primary profession (yes/no) and country (Liberia/Sierra Leone)

	Country		
Trader	Sierra Leone	Liberia	Total
No	142 34.7%	267 65.3%	409
Yes	5 20.0%	20 80.0%	25
Total	147	287	434

defensibly be tested using more than one predictor, given the low number of successes on the outcome variable of professional trader. Therefore, these control variables are moot in that case.

Finally, I georeferenced and then traced two maps of ethnic composition (one for Sierra Leone,[2] the other for Liberia[3]). While ethnic homelands have fuzzy boundaries that often overlap, I interpreted the associated discrete shapes to be areas of dominant or predominant demographic majority. I was then able to cross-reference these shapes with the self-ascribed ethnic groups of survey respondents and, using the road network, estimate how far each respondent was situated from his or her ethnic "homeland." This might serve as a rough proxy for how far out of one's ethnic "comfort zone" one is. In any case, this variable is used as predictor for the homogenization hypothesis described in Chapter 5.

The analysis enabled by this preparatory GIS work employed a multi-level logistic regression model, wherein data were grouped by district or county (see Tables C.2, C.3, C.4, and C.5).

C.2 Regression Tables

[2] The map most used for this purpose was produced by the US Central Intelligence Agency (1969). When clarification was needed, I consulted the map by Sierra Leone Information System (2006).

[3] The map used for Liberia was produced by the Humanitarian Information Centre for Liberia (2003).

Table C.2 Uncontrolled and fixed-effects logistic models predicting the outcome of trader by profession as a function of the predictor variables invoked by the dispersal hypothesis

	Uncontrolled			District-level fixed-effects		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Distance to nearest event	**−0.0183***			**−0.0183***		
	(0.00955)			(0.00955)		
Inverse time elapsed since nearest event		**1,035***			**1,035***	
		(574.7)			(574.7)	
Severity of nearest event (number killed)			0.000100			0.000353
			(0.000593)			(0.000713)
Constant	**−2.416*****	**−3.555*****	**−2.820*****	**−2.416*****	**−3.555*****	**−3.014*****
	(0.259)	(0.502)	(0.255)	(0.259)	(0.502)	(0.387)
Observations	434	434	434	434	434	434
Pseudo R2	0.0219	0.0178	0.000147	0.0059	0.0059	0.023
Number of groups	NA	NA	NA	7	7	7

Standard errors in parentheses
*** p<0.01,** p<0.05,* p<0.1

Table C.3 Uncontrolled and controlled fixed-effects logistic models predicting the distance from ethnic homeland as a function of the predictor variables for the ethnic homogenization hypothesis

	OLS			Fixed-effects OLS		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Interaction: Trader x distance (km) from nearest event	−0.000246 (0.00982)			−0.00224 (0.00909)		
Interaction: Trader x recentness of nearest event		−721.5 (585.6)			−809.7 (543.5)	
Interaction: Trader x severity of nearest event			−**0.00119**** (0.000572)			−**0.00134**** (0.000526)
Trader by profession	−0.00849 (0.264)	0.582 (0.526)	0.262 (0.248)	0.161 (0.245)	0.796 (0.491)	**0.443*** (0.231)
Distance from nearest event (km)	−**0.0166***** (0.00232)	−**0.0166***** (0.00230)	−**0.0169***** (0.00230)	−**0.0145***** (0.00224)	−**0.0147***** (0.00221)	−**0.0150***** (0.00221)
Severity of nearest event (number killed)	**0.000500***** (0.000170)	**0.000498***** (0.000170)	**0.000587***** (0.000174)	−**0.00101***** (0.000244)	−**0.00103***** (0.000244)	−**0.000944***** (0.000245)
Recentness of nearest event (inverse elapsed months)	**1,083***** (168.2)	**1,118***** (170.1)	**1,060***** (167.5)	**2,389***** (288.5)	**2,475***** (292.9)	**2,412***** (287.2)
Constant	**0.471***** (0.142)	**0.449***** (0.143)	**0.474***** (0.142)	−0.0803 (0.278)	−0.125 (0.283)	−0.0964 (0.281)
Observations	423	423	423	423	423	423
R-squared	0.378	0.380	0.384			
Number of groups				7	7	7
Pseudo R2				0.0395	0.0401	0.0414

Standard errors in parentheses
*** p<0.01,** p<0.05,* p<0.1

Table C.4 Stratified fixed-effects Poisson regressions of weekly income (2006 US$) of traders and non-traders on characteristics of the nearest violent event

	Traders				Non-traders			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Distance (km) from nearest event	0.00179 (0.00208)			**0.00881***** (0.00216)	**−0.0125***** (0.000470)			**−0.00831***** (0.000555)
Recentness of nearest event (inverse elapsed months)		**1,067***** (141.7)		**1,129***** (174.0)		**1,036***** (30.34)		**694.3***** (40.66)
Casualties of nearest event			**0.000782***** (9.75e–05)	**0.000343***** (0.000116)			**0.000428***** (2.88e-05)	**0.000251***** (3.44e-05)
Constant	**3.036***** (0.0554)	**2.138***** (0.138)	**2.815***** (0.0575)	**1.836***** (0.166)	**3.312***** (0.0140)	**2.274***** (0.0267)	**2.918***** (0.0138)	**2.642***** (0.0360)
Observations	25	25	25	25	409	409	409	409
Pseudo R2	0.00100	0.0906	0.0812	0.144	0.0384	0.0614	0.0103	0.0732

Standard errors in parentheses
*** p<0.01,** p<0.05,* p<0.1

Table C.5 Fixed-effects Poisson regression models predicting weekly income (2006 US$) as a function of trader, distance from ethnic homeland, and violence

VARIABLES	(1)	(2)	(3)	(4)
Trader by profession = 1	**−1.447*** **	**0.510*** **	**−0.284*** **	**−0.756*** **
	(0.129)	(0.156)	(0.0967)	(0.250)
Distance from ethnic homeland (km)	**0.130*** **	**−0.631*** **	**−0.197*** **	**0.330*** **
	(0.0121)	(0.0562)	(0.0162)	(0.0561)
Interaction: Trader x distance from ethnic homeland	**0.569*** **	**−2.633*** **	−0.0172	**−4.755*** **
	(0.0535)	(0.419)	(0.0649)	(0.894)
Distance from nearest violent event (km)	**−0.00144** **			**0.00405*** **
	(0.000674)			(0.000792)
Interaction: Distance from violence x trader	**0.0323*** **			**0.0157*** **
	(0.00289)			(0.00380)
Interaction: Distance from violence x distance from ethnic homeland	**−0.00449*** **			**−0.0102*** **
	(0.000672)			(0.000927)
Interaction: Distance from event x trader x distance from ethnic homeland	0.000365			**0.0871*** **
	(0.00519)			(0.0154)
Recentness of nearest violent event (inverse elapsed months)		45.24		**606.3*** **
		(64.73)		(110.0)
Interaction: Recentness of violence x trader		**−963.3*** **		**−545.5***
		(191.2)		(313.1)
Interaction: Recentness of violence x distance from ethnic homeland		**733.3*** **		**−609.3*** **
		(53.20)		(60.96)
Interaction: Recentness of violence x trader x distance from ethnic homeland		**2,669*** **		**4,916*** **
		(371.5)		(859.2)
Severity of nearest event (number killed)			**−0.000487*** **	**−0.000938*** **
			(6.15e-05)	(0.000110)
Interaction: Severity of violence x trader			0.000279	**0.000804*** **
			(0.000191)	(0.000292)
Interaction: Severity of violence x distance from ethnic homeland			**0.000561*** **	**0.000793*** **
			(2.25e-05)	(3.37e-05)
Interaction: Severity of violence x trader x distance from ethnic homeland			**0.000258*** **	**−0.000729*** **
			(8.38e-05)	(0.000176)
Constant	**2.500*** **	**2.556*** **	**2.639*** **	**2.294*** **
	(0.259)	(0.201)	(0.264)	(0.255)
Observations	423	423	423	423
Number of groups	7	7	7	7
Pseudo R2	0.0377	0.0183	0.0673	0.0131

Standard errors in parentheses
*** p<0.01,** p<0.05,* p<0.1

References

Humanitarian Information Centre for Liberia. 2003. "County District and Clan Administrative Boundaries," Map catalog code: LIB046.

Sierra Leone Information System. 2006. "Ethnic Groups of Sierra Leone," SLIS Map Code 02.

US Central Intelligence Agency. 1969. "Ethnic Groups [of Sierra Leone]," Map No. 58962 1969.

APPENDIX D

Technical Details of Chapter 6

D.1 Derivation of Select Variables

The number of road junctions was a simple matter in GIS: network layers (including routes and junctions) were built from the Indian roads layer, and the event points were used to generate a near table, listing all of the junctions from the network dataset within 20 kilometers. The distance of 20 kilometers was used because it yielded a greater variation of junction point densities than 10 kilometers without drawing excessively on shared junction points between events, as 40 kilometers did.

To generate a control for the length of roads in that radius (l2lenrds), the roads were split according to the 20-kilometer buffer areas around each event in the GIS, their lengths were recalculated, and then their attribute tables were spatially joined to the buffer file itself, so that the IDs of each event are associated with the roads in its buffer zone. The minimum distance to, and population of, the nearest city; average distance to, and populations of, the closest three cities; average distance to, and populations of, the closest 100 cities, were created in the GIS. These market access proxies were derived by creating an origin-destination cost matrix, in which the network hierarchy (highways increasing access most, then secondary roads) was employed to derive the minimum-cost routes from each event to each city. The resulting table of transportation costs was then linked to a table of population figures for each city to obtain a rough idea of the size of each market being accessed.

The variable for rural-urban linkages was less straightforward to calculate. Like Fan et al. (2005), I posit that the ruralurban linkage can be estimated with a regression model according to the form:

$$AG_{i,t} = f(FO_{i,t-1}, GSDP_{i,t}, GDP_t),$$

where AG_{it} is the growth of the rural agricultural sector in region i at time t, $FO_{i,t-1}$ is the lagged factory output from that region, and $GSDP_{i,t}$ is the gross state domestic product. In fact, $AG_{i,t}$ was found to be related to the squares of $FO_{i,t-1}$ and $NSDP_{i,t}$,[1] such that the model can be stated:

[1] Factory output was based on the Ministry of Finance data from the Annual Survey of Industries, 1999–2006. NSDP was calculated based on the datasets "State-wise Growth Rate of Net State Domestic Product (NSDP) at 1993–1994 Prices in India, 1994–2005" "State-wise Growth Rate of Net State Domestic Product (NSDP) at 1999–2000 Prices in India, 1999–2008,"

Appendix D

$$AG_{i,t} = \beta_0 + \beta_1 FO_{i,t-1} + \beta_2 FO^2_{i,t-1} + \beta_3 NSDP_{i,t} + \beta_4 NSDP^2_{i,t} + \beta_5 GDP_t + \epsilon_i + \vartheta_{i,t}. \quad \text{(D.1)}$$

A non-hierarchical model was used in practice, which can be stated as:

$$AG_{i,t} = \beta_0 + \beta_1 FO_{i,t-1} + \beta_2 FO^2_{i,t-1} + \beta_3 NSDP_{i,t} + \beta_4 NSDP^2_{i,t} + \beta_5 GDP_t + \beta_6 YR_t + \vartheta_{i,t}, \quad \text{(D.2)}$$

where *YR* is the year. The results of that regression suggests that all terms are significantly associated with agricultural production, and that, holding all other factors constant, $AG_{i,t}$ is at its maximum value when factory output grew at a rate of 15.7 percent per annum the previous year.

I used the non-hierarchical model to derive estimates for each state in the Red Corridor. I used the same model as specified in Equation (D.2), though I added a state categorical variable, as well as an interaction term for the the state variable and $FO_{i,t-1}$, such that:

$$AG_{i,t} = \beta_0 + \beta_1 FO_{i,t-1} + \beta_2 FO^2_{i,t-1} + \beta_3 NSDP_{i,t} + \beta_4 NSDP^2_{i,t} + \beta_5 GDP_t + \beta_6 YR + \beta_7 ST_i + \beta_8 (ST_i * FO^2_{i,t-1}) + \vartheta_{i,t}, \quad \text{(D.3)}$$

where ST_i represents the state in question. Because the object is not to determine $AG_{i,t}$, per se, but rather to determine the relationship between $FO_{i,t-1}$ and $AG_{i,t}$, I then added β_1 and β_8, as those terms are in the same units, since $ST_i = (0, 1)$. The results are presented in Table D.1. $\beta_1 + \beta_8$ represents the state's rural-urban linkage strength, using the variables $FO_{i,t-1}$ and $AG_{i,t}$ as proxies for the output of the urban and rural economies respectively. There are numerous potential problems with using such proxies. First, factories (as required by $FO_{i,t-1}$) do not exist solely in urban areas. Second, factories may become more productive without translating that productivity into urban welfare by way of wages (i.e. profits to management may rise). Moreover, the agricultural sector is not the only component of the rural economy, though reliance on

Table D.1 Regression coefficients for β_1, β_2, β_8 and $\beta_1 + \beta_8$

State	β_1	β_8	$\beta_1 + \beta_8$	β_2
Andhra Pradesh	0.197	0.388	0.586	**−0.689*** **
Bihar	**0.225***	−0.074	0.152	**−0.673****
Chhattisgarh	**0.235***	−0.095	0.140	**−0.712*** **
Jharkhand	0.165	0.278	0.443	**−0.636****
Karnataka	**0.215***	0.062	0.277	**−0.704*** **
Kerala	**0.232***	−0.034	0.199	**−0.734*** **
Madhya Pradesh	**0.341*** **	**−0.424*** **	−0.083	**−0.786****
Maharashtra	**0.227***	0.006	0.233	**−0.726*** **
Orissa	**0.217***	−0.003	0.214	**−0.693****
Tamil Nadu	0.170	0.397	0.567	**−0.631****
Uttar Pradesh	**01.232***	−0.213	0.019	**−0.731*** **
West Bengal	**0.233***	0.111	0.344	**−0.742*** **

*** p<0.01, ** p<0.05, * p<0.1

compiled and made available by IndiaStat from Ministry of Agriculture data. GDP growth rates for India were obtained from the IMF's International Financial Statistics online database.

$AG_{i,t}$ as the outcome variable assumes that it is. In any case, other possible outcome variables (such as poverty incidences) had too limited data availability to fit the bill.

D.2 Regression Tables

Results of regression models are provided in Tables D.2, D.3, D.4, and D.5.

Table D.2 Final random-effects Poisson regression control models estimated for total violence with random effects at state and district levels

	No year/month FE		Year/month FE	
VARIABLES	(1)	(2)	(3)	(4)
Logged length of roads within 20 km	−**0.444*** (0.227)	−**0.372*** (0.196)	−**0.636**** (0.267)	−0.238 (0.189)
District roads (km) per area (km^2)	−0.0996 (0.813)		−0.930 (1.323)	
Distance to nearest city	−**0.0116***** (0.00400)	−**0.00803***** (0.00155)	−**0.0171***** (0.00494)	−**0.0156***** (0.00321)
Population of nearest city	−**7.68e-07**** (3.74e-07)	−**9.51e-07***** (1.93e-07)	−**8.51e-07**** (4.27e-07)	−**4.84e-07**** (2.13e-07)
Interaction: Distance (km) to x population of nearest city	**7.99e-09**** (3.59e-09)	**9.44e-09***** (2.06e-09)	**9.75e-09**** (4.15e-09)	**6.37e-09***** (2.29e-09)
Average distance (km) of nearest 3 cities	0.00501 (0.00502)		0.00987 (0.00608)	**0.0119***** (0.00325)
Average population of nearest 3 cities	4.81e-07 (7.39e-07)	**5.73e-07**** (2.45e-07)	3.99e-07 (9.21e-07)	**5.12e-07*** (2.78e-07)
Interaction: Average distance (km) x population of nearest 100 cities	7.29e-10 (4.53e-09)		1.00e-09 (5.17e-09)	
Average distance (km) of nearest 100 cities	0.00282 (0.0107)	−**0.00341***** (0.00102)	0.0155 (0.0130)	−**0.00354***** (0.000997)
Average population of nearest 100 cities	6.87e-06 (1.23e-05)		2.12e-05 (1.50e-05)	
Interaction: average distance (km) x population of nearest 100 cities	−1.09e-08 (1.40e-08)		−**2.87e-08*** (1.70e-08)	
Target: Private	**0.864***** (0.125)	**0.891***** (0.117)	**0.837***** (0.142)	**0.771***** (0.122)
District population density	0.000202 (0.000272)	0.000255 (0.000196)	0.000392 (0.000655)	
District percentage urban population	**0.0171*** (0.00922)	**0.0149***** (0.00574)	**0.0241**** (0.0116)	
District percentage of urban laborers	6.97e-05 (0.0173)		−0.00400 (0.0223)	
District percentage forested	**3.130*** (1.608)	**2.361***** (0.776)	2.397 (2.439)	**2.775***** (0.865)
District percentage non-agricultural	**4.339**** (1.779)	**3.174***** (1.014)	3.980 (3.049)	**5.045***** (1.217)
District percentage cultivable wastelands	−1.115 (10.00)		−1.621 (13.66)	

(*continued*)

Table D.2 Continued

	No year/month FE		Year/month FE	
VARIABLES	(1)	(2)	(3)	(4)
District percentage fallow	0.0303 (2.921)		−2.849 (4.354)	
District percentage sown	1.311 (1.540)		0.403 (2.136)	
District food production per capita	0.0550 (0.0358)	0.0388 (0.0244)	**0.0924** (0.0420)	
District non-food production per capita	−0.00203 (0.403)		0.136 (0.528)	
Factory production value per capita	**3.472** (1.425)	**3.022** (1.146)	**3.975** (1.681)	
Tea producing state	–	–	–	**1.516** (0.773)
Tea harvest time	−0.124 (0.0846)	−**0.134** (0.0663)	**11.97** (4.238)	**8.076** (3.438)
Interaction: Tea state x tea harvest time = o,	–	–	–	
Coffee producing state	0.340 (1.225)	0.190 (0.319)	−0.152 (2.203)	0.0634 (0.415)
Coffee harvest time	**0.182** (0.0766)	**0.215** (0.0708)	−**1.020** (0.489)	−**0.767** (0.429)
Interaction: Coffee state x coffee harvest time	−**0.799** (0.257)	−**0.597** (0.180)	−**0.821** (0.302)	−**0.505** (0.257)
Net state domestic product	−4.57e-06 (1.11e-05)		1.83e-05 (2.58e-05)	**5.43e-06** (2.71e-06)
NSDP per capita	−**0.709** (0.322)	−**0.570** (0.252)	−**1.036** (0.387)	
NSDP growth rate (%)	5.498 (5.584)		**1,586** (563.0)	**1,063** (449.0)
Naxals killed in state/year	−0.00353 (0.00337)	−**0.00521** (0.00171)	−**0.0140** (0.00544)	−**0.00987** (0.00243)
Kill ratio: Naxals to police	0.0583 (0.0825)		−0.0688 (0.139)	
Weapons looted in state/year	−0.000668 (0.00226)		0.00385 (0.00302)	**0.00703** (0.00151)
Weapons recovered in state/year	−0.000618 (0.000825)		−0.00126 (0.000997)	−**0.000455** (0.000222)
Month and year	−0.0107 (0.00668)	−**0.00825** (0.00305)	**0.980** (0.347)	**0.629** (0.277)
Year fixed-effects	**NO**	**NO**	**YES**	**YES**
Month fixed-effects	**NO**	**NO**	**YES**	**YES**
Constant	6.786 (9.980)	**9.875** (2.201)	−**701.2** (247.1)	−**445.6** (195.9)
var(_cons[districtid])	0 (0)	0 (0)	0.281 (1.158)	0 (0)
var(_cons[districtid>stcode])	**0.349** (0.140)	**0.311** (0.109)	0.434 (1.104)	**0.561** (0.174)
Observations	161	190	161	197
Number of groups	37	40	37	38
Pseudo R2	0.460	0.455	0.613	0.537

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table D.3 Uncontrolled and controlled random-effects (at state and district levels) Poisson models regressing violence and damage in Maoist attacks on rural-urban linkage strength (2000–07)

	Uncontrolled		Controlled	
VARIABLES	(1)	(2)	(3)	(4)
State rural-urban linkage strength	−**4.201*****	−**3.593*****	5.402	0.539
	(0.849)	(0.867)	(3.889)	(3.994)
Target: Private = 1		**1.198*****	**0.767*****	**1.904*****
		(0.146)	(0.132)	(0.263)
1.t_priv#c.rulink		−**1.367*****		−**4.170*****
		(0.500)		(0.809)
Year fixed-effects	YES	YES	YES	YES
Month fixed-effects	YES	YES	YES	YES
District fixed-effects	YES	YES	YES	YES
State fixed-effects	YES	YES	YES	YES
Constant	**1.162****	0.0443	−**422.6****	−**469.0****
	(0.466)	(0.485)	(203.0)	(200.9)
Observations	337	337	197	197
Pseudo R2	0.9251	0.9262	0.5884	0.605

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table D.4 Uncontrolled and controlled random-effects (at state and district levels) Poisson models regressing violence and damage in Maoist attacks on number of road junctions within 20 km (2000–07)

	Uncontrolled		Controlled	
VARIABLES	(1)	(2)[I]	(3)	(4)
Road junctions within 20 km	−**0.0419*****	−**0.0500*****	−0.0115	−0.00747
	(0.00556)	(0.00643)	(0.00913)	(0.00902)
Target: Private = 1		**0.778*****	**0.769*****	**1.437*****
		(0.0901)	(0.122)	(0.214)
1.t_priv#c.jncrd		0.00331		−**0.106*****
		(0.0144)		(0.0291)
Year fixed-effects	YES	YES	YES	YES
Month fixed-effects	YES	YES	YES	YES
District fixed-effects	NO	YES	NO	NO
State fixed-effects	NO	YES	NO	NO
Controls	NO	NO	YES	YES
Constant	−**1.299*****	−**1.957*****	−**444.4****	−**429.1****
	(0.287)	(0.289)	(195.4)	(193.3)
var(_cons[districtid])	0	NA	0	0
	(0)		(0)	(0)
var(_cons[districtid>stcode])	**1.463*****	NA	**0.551*****	**0.484*****
	(0.314)		(0.171)	(0.156)
Observations	337	337	197	197
Number of groups	45		38	38
Pseudo R2	0.478			0.0871

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
[I] Model 2 proved incalculable using the desired multilevel specifications; dummy variables for states and districts were used instead.

Appendix D

Table D.5 Uncontrolled and controlled random-effects (at state and district levels) Poisson models regressing violence and damage, violence alone, and damage alone in Maoist attacks on interacted predictors: civilian target, road junctions within 20 km, and rural-urban linkage strength (2000–07)

	Violence + damage		Violence		Damage	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Road junctions within 20 km	−**0.137*****	−0.0132	−**0.193*****	−0.00992	−0.0149	0.0362
	(0.0146)	(0.0143)	(0.0208)	(0.0200)	(0.0170)	(0.0269)
Target: Civilian = 1	**0.588*****	**2.874*****	**0.607*****	**2.729*****	−0.707	−2.245
	(0.211)	(0.385)	(0.230)	(0.447)	(1.082)	(2.806)
Civilian#Road junctions	**0.0964*****	−**0.151*****	**0.143*****	−**0.134****	−0.445	−0.149
	(0.0288)	(0.0525)	(0.0337)	(0.0577)	(0.350)	(0.595)
State rural-urban linkage strength	−**3.394*****	−1.265	−**4.857*****	−**2.703***	−0.439	0.208
	(0.560)	(0.886)	(0.690)	(1.566)	(0.824)	(1.192)
Road junctions #rural-urban linkage strength	**0.283*****	−0.00609	**0.382*****	−0.00182	0.0510	−0.0404
	(0.0342)	(0.0408)	(0.0472)	(0.0536)	(0.0394)	(0.0709)
Civilian#rural-urban linkage strength	0.103	−**6.109*****	0.887	−**4.639*****	−1.902	3.963
	(0.771)	(1.265)	(0.820)	(1.408)	(3.181)	(7.013)
Civilian#Road junctions#rural-urban linage strength	−**0.250*****	**0.290****	−**0.364*****	**0.262***	0.829	−0.210
	(0.0918)	(0.140)	(0.103)	(0.148)	(0.642)	(1.342)
Controls	NO	YES	NO	YES	NO	YES
Monthly fixed-effects	YES	YES	YES	YES	YES	YES
Yearly fixed-effects	YES	YES	YES	YES	YES	YES
Constant	−0.395	−**485.9****	−0.639	−**1,195*****	−0.766	492.4
	(0.356)	(191.3)	(0.414)	(298.6)	(0.861)	(333.0)
District constant	0	**0.376*****	0	0	0	0
	(0)	(0.137)	(0)	(0)	(0)	(2.68e-08)
State constant	**1.022*****	0	**1.638*****	**0.929*****	**0.407*****	0.0425
	(0.242)	(0)	(0.412)	(0.334)	(0.147)	(0.114)
Observations	337	197	339	197	346	198
Number of groups	45	38	45	38	45	38
Pseudo R2	0.9299	0.9315	0.5392	0.5599	0.5392	0.5599

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Reference

Fan, Shenggen, Connie Chan-Kang, and Anit Mukherjee. 2005. "Rural and Urban Dynamics and Poverty: Evidence from China and India," Washington, DC: International Food Policy Research Institute.

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