

The Internet and Ethnic Riots

by

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ABSTRACT

In this dissertation i argue that the internet has a positive impact on the likelihood of ethnic riots. To make this argument I put forward three major claims. First, ethnic riots are best understood as performances that aim to clarify ambiguities in the social order. Second, communication technologies structurally constrain the flow of information passing through them. Third, the internet is unique among modern Information Communication Technologies in its capacity for inducing ethnic riots. I provide two types of empirical evidence to support these claims: a cross-national analysis of internet penetration and a case study of India. The former provides evidence for the central claim, finding that the internet has a positive effect on the likelihood of ethnic conflict after a threshold of internet penetration is met. The latter sketches the limits of the proposed theory, finding that internet penetration decreased the likelihood of ethnic riots in India. I argue this is a result of welfare contextualization of the internet.

DEDICATION

To Justine

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A popular saying among elders in my family goes ‘Only those who do the work of humanity are deserving of the title ‘human’’. Though some depth is lost in translation, the message resonates in any language. We find our humanity in service to others. Graduate school has felt, in many ways, like an indulgence; one enabled by the sacrifices and help of innumerable people. With the culmination of this dissertation, I’d like to honor their help and get to doing the work of humanity. But first, these people deserve recognition.

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Chapter 1

INTRODUCTION

Do communication technologies influence the likelihood of ethnic conflict? The extant literature suggests they do. Though contextualized by a number of factors – rurality, state authority, poverty – scholars have consistently found that cellphones tend to increase the likelihood of conflict.

Such questions are timely. Communication technologies, broadly conceptualized, are the foundation upon which the modern world is built. Few facets of political life escape their influence and no where does politics have more dramatic and deadly repercussions than where ethnic groups collide. As such, understanding how the contours of ethnic identity are influenced by the proliferation of these technologies is imperative.

Until now, researchers have focused on organized ethnic conflict but such outcomes are but one form ethnic conflict can take. Recent events have made this observation abundantly clear. Ethnic animus manifests itself in myriad ways; in implicit and subtle biases, inter-party conflicts, and riots.

This dissertation focuses on the latter. It attempts to answer the question: what effect does internet access have on the likelihood of ethnic riots? In doing so it makes two main contributions. First, it theoretically disaggregates modern communication technologies. The internet and cellphones, I argue, condition the flow of information in different ways which should be considered seriously. Second, it considers riots as the outcome of interest. Previous studies have largely focused on the effect of communication technologies on *organized* ethnic conflict. Such forms of conflict are important to understand but the insights garnered in studying them do not necessarily

translate to other outcomes. Not all forms of violence animated by ethnic animus are generated from the same processes.

Swelling nationalism and near universal proliferation of modern communication technologies make this a question worth asking. Modern-day nationalists have been exceedingly successful in capitalizing upon and intensifying the salience of ethnic divisions. The hatreds they have stoked increasingly manifest themselves in spontaneous acts of ethnic violence. Modi's nationalists aren't separatists; they roam the streets and prey on minorities. These behaviors are 'ethnically' driven insofar as they speak to an ethnic identity, but they bear little resemblance to organized separatism or militia violence. They are worth considering in their own right.

Further, the role of the internet in facilitating such behaviors is *prima facie* undeniable. Misinformation spreads through the internet preceding ethnic riots but little about this observation has been rigorously theorized or explored with academic rigor. This dissertation attempts to remedy that gap by laying a foundation for our understanding of this relationship. The internet is now nearly ubiquitous. Its effect on an increasingly prevalent form of ethnic conflict is worth understanding.

1.1 Summary

As of July 2019, nearly 4.5 Billion people were regularly accessing the internet, many of them via mobile phones (ITU, 2020). If any technology were to radically transform humanity's capacity for collective empathy or generate democratic outcomes, it would be this one. While the reality of the internet falls far short of its promise, the scholarly literature paints a nuanced picture of the medium and its effects on political outcomes. This work hopes to add to that view. In this dissertation I hope to explore the role the internet plays in facilitating ethnic conflict; specifically, riots.

In this chapter, I build a foundation for the theoretical and empirical work that follows. To begin, I define the concepts critical to this project. I explore ethnic conflict, riots, and Information Communication Technologies. Following this I review the literature critical to the theorizing in Chapters 2 and 3. Specifically, I review the literature on ethnic conflict and information technology, riots, and performativity. I take pains to point out the lack of inquiry with regards to spontaneous forms of ethnic conflict and the disaggregation of modern ICTs. Next, I articulate the claims that constitute my core arguments. Chiefly, I argue that internet proliferation has a measurable and positive impact on the likelihood of riots; that the internet ought to be disaggregated from cellphones theoretically and empirically; and that state intervention contextualizes internet use. Finally, I summarize and lay out a roadmap for the following chapters.

Much of this introductory chapter imports concepts frameworks that have wide purchase in the discipline if not in the study of ethnic conflict. The hope, in summarizing these threads, is that they amalgamate to a novel whole. In doing so, I hope to contribute to the incremental accumulation of knowledge in this very narrow domain.

1.2 Concepts

Spontaneous ethnic conflict is the primary concept of interest in this work. As such, clearly articulating what falls within and without the boundaries of the concept is key. Horowitz's 'Ethnic Groups in Conflict' serves as a good foundation (Horowitz, 1985). Whereas the colloquial usage of 'ethnic' denotes division along racial and/or linguistic lines, here I use the concept in the academic sense to mean groups organized around an ascriptive identity. This approach entails a few benefits; chiefly, it casts a broad net in defining ethnicity and thus relieves scholars of defining what identities are truly characterized by their ethnic nature and which are, for instance, religious,

social, or class-based at their core. This broad definition of ethnicity captures a wide degree of variation in societal cleavages world-wide and allows for theories of ethnicity to travel beyond the particular cases in which hypotheses are tested.

Next, I take ‘conflict’ to mean disagreements between ethnic groups that manifest themselves in collective, violent behavior. This usage emphasizes two points; first, the behaviors in question are collective in nature and second, these behaviors occur outside of non-violent political institutions such as political parties.

Isolated violent actions undertaken by lone actors motivated by ethnic animus fall beyond the purview of this study. The heavily collective emphasis of the theory offered takes the group as the primary unit of analysis. Identity is built at the group level and networks of communication speak to group-level dynamics. It follows that a relevant definition of conflict captures behavior at the same scale. Moreover, accurate and reliable data on individual actions and the motivations that drive perpetrators to such actions are not available in sufficient quantity or quality to make the analysis of such a theory feasible.

This definition of ‘conflict’ entails actions that are carried out beyond the framework of formal political institutions. Whereas competition between ethnic parties in a robust democracy undoubtedly constitutes some kind of ‘conflict’, this kind of disagreement, channeled through political institutions designed to facilitate expression and address disagreements peacefully, lies beyond the scope of the claims made here. As stated by Ashutosh Varshney, ‘In any ethnically plural society that allows free expression of political demands, some ethnic conflict is more or less inevitable, but it may not necessarily lead to violence’ (Varshney, 2001). I choose to borrow Varshney’s Huntingtonian account of ethnic conflict (Huntington, 1968) as violent behaviors that exceed the capacity of political institutions to channel. Ethnic conflict, in the context of this study, considers violent behaviors undertaken by groups claiming a particular

group identity.

A further disaggregation of the concept is warranted; clashes between state and non-state ethnic actors constitute ‘organized’ forms of collective ethnic conflict while ethnic riots/communal violence constitute ‘spontaneous’ forms of collective ethnic conflict. The argument made here considers the latter but supplying definitions for both can be useful.

Organized forms of ethnic conflict are characterized by behavior that is coordinated by centrally located political entrepreneurs, is generally carried out in service to a political end (e.g. separatism, irredentism, autonomy, etc.) and emanates from a hierarchical organization. This definition of organized ethnic conflict captures activities undertaken by ethnically oriented organizations that engage in violent anti-state activities. Ethnic militia and the political wings associated with said militia are centrally located and act as political entrepreneurs. Moreover, violent activities undertaken by these groups clearly aim towards a specific political end. The actions of the Liberation Tigers of Tamil Eelam, Irish Republican Army, and Karen National Liberation Army in Sri Lanka, Ireland, and Myanmar respectively, serve as examples of institutions that carry out organized forms of ethnic conflict. Much of literature on communication technology and ethnic conflict considers this type of conflict.

This work, by contrast, considers spontaneous forms of ethnic conflict, specifically the ethnic riot. Horowitz defines the ethnic riot as ‘[...] an intense, sudden, though not necessarily wholly unplanned, lethal attack by civilian members of one ethnic group on civilian members of another ethnic group, the victims chosen because of their group membership’ (Horowitz, 2001). Spontaneous ethnic conflict emerges seemingly without political entrepreneurs playing a central role, is carried out to express and reinforce grievances rather than political ends, and emanates from the periphery of social networks. Communal violence between Hindus and Muslims in India and the

persecution of the Muslim minority in Myanmar serve as examples of spontaneous ethnic conflict. While there is admittedly some ambiguity in the classification of ethnic riots as a spontaneous form of ethnic conflict given the possibility of prior planning, I argue the defining characteristic of a spontaneous incident of ethnic conflict is not the degree to which planning occurs, but rather the extent to which centralized political entrepreneurs play a pivotal role and the extent to which political goals play an immediately motivating role for individual participants.

Information Communication Technologies (ICTs) constitute communicative technologies and the attending services that make the modern, high-speed relay of information between users possible. Cellphones, the internet, and social media are the most immediately observable components of these technologies but data warehouses, software, and digital financial architecture also fall under this umbrella. This expansive definition of ICTs, commonly employed in the communications literature (?), is helpful in conceptualizing a holistic view of information networks but such a definition is too inclusive for the purpose of this project. While changes in the software that architecturally supports a particular social media platform may conceivably have an impact on ethnic conflict, such an effect would likely be far too small to observe or disentangle from other factors. More importantly, many of these back-end services are theoretically irrelevant to the question of ICTs and conflict, at least until our understanding of this relationship expands.

For this reason, I follow previous authors (Bergren and Bailard, 2017; Pierskall and Hollenbach, 2013; Warren, 2015) and limit my definition of modern ICTs to the immediately observable components of the ICT network; namely, cellphones, the internet, and social media. While I will later argue that each differs from the other in the type of communicative networks produced, there is wide consensus that these technologies represent a distinct cohort of ICTs given the overlapping time periods

that capture their widespread adoption and the enormous marginal increase in communicative capacity each represents over prior forms of communication.

Notably, this definition of ICTs excludes prior forms of communication such as radio and television. While these technologies will be referenced in the proceeding pages for the sake of comparison, the scope of this theory does not include them. This is for two reasons. First, the dynamics informing the proliferation of prior technologies such as television differ significantly from those informing the proliferation of modern ICTs. Whereas the acquisition of a television was (and still is) a signifier of a high degree of wealth in much of the world, the proliferation of the internet has been far more widespread and affordable. Second, the rate at which modern ICTs facilitate the flow of information has no equivalent in prior technologies. For these reasons I conceptualize ICTs as the modern cohort of cellphones, the internet, and social media.

The preceding definitions address the content of the concepts I hope to discuss while admitting where ambiguity still lies. Moreover, these definitions set specific scope conditions on the theory proposed. The theory proposed does not seek to explain all forms of ethnic conflict nor does it seek to explain how all communication technologies impact said conflict. Rather, the theory proposed here seeks to explore how the internet specifically impacts the likelihood of spontaneous forms of ethnic conflict.

1.3 Literature Review

1.3.1 Information Communication Technology and Political Behavior

Scholarly interest in the relationship between communication technologies and political behavior has its roots in the mid-20th century. While early studies these

inspired many of the works cited here, it is more appropriate to begin the exploration of this canon with the introduction of electronically enabled media. While studies examining the effect of newspaper availability on outcomes ranging from voter turnout to public sentiment share many characteristics with modern works, they differ in kind insofar theory development is concerned. The introduction of radio and television marked a period in which time and distance collapsed. While information may be diffused across great distances via newspaper, nothing carries a message as instantaneously and as far as a radio or television signal. Theorization following the introduction of electronic communication technologies reflects this realization.

Early works that centered on such technologies focused heavily on the spread of information. By these early accounts, communication technologies amplify and extend processes that can be observed at smaller scales. For example, (Jacobson, 1975) argues radio allowed for the amplification of campaigning tactics that were already observable at a micro-scale¹. These works rarely connected the technology in question with political behavior directly. Television and radio, in these early accounts, intensify pre-existing processes.

Likewise, (Klapper, 1960) theorizes on mass media effects via a psychological framework. By this account, radio helps otherwise underserved populations mobilize information. These early works are notable for the extent to which they view the technologies in question as theory agnostic. Early authors didn't theorize about technology but around it.

This theoretical flexibility is most readily observed in the methodological assumptions made in early studies of technology and protest intensity. In his work on the topic, (Gurr, 1968) measures incidents of protest by scouring newspapers, noting

¹See also Graves (1968) and MacNeil (1968) for early works on the effect of television on electoral campaigns in the American context.

‘Many small-scale strife events, and some larger ones, probably went unreported in these sources [...] However, neither random nor systematic error seem sufficient to affect in any substantial way the analyses or conclusions reported here’. This early approach belies an understanding of communication technology as primarily a tool of amplification. Media, by this account, do not structure the information passing through them; events that are unreported are omitted essentially at random.

As the literature moves on from this early phase of exploration, scholars begin theorizing on the unique characteristics of the technologies in question. Perhaps most famously, Putnam’s consideration of the collapse of the American civic culture cites television as a uniquely affecting technology (Putnam, 1995, 2000).

Television, by Putnam’s account, has an influence beyond the amplification of pre-existing phenomena. It isolates individuals and fractures societal bonds in a way that prior technologies did not. Television exists not merely as the medium through which information passes, but as an independent influence that structurally incentivizes certain behaviors; behaviors which in turn shape the contours of societal connections. Putnam represents a cohort of scholars who begin to take the medium in question seriously.

This turn in the literature reorients communication technologies from distant intermediaries in the narrative of outcomes to proximate causes. From this period onward, television and radio are rarely discussed as addendums to processes that would likely persist in their absence. Instead, scholars explore processes that are unique to the adoption of these technologies. Technologies begin to take on a causal role.

While these works rarely examined the structural constraints radio and television imposed on information passing through their networks, they are characterized by a degree of theoretical complexity and diversity that remains unique in this canon. The

information passing through these networks was a given, but how and why it influenced outcomes was explored in interesting and creative ways. Prior literature may have come from equally as many theoretical foundations, but this was an incidental result of theoretical neglect vis a vis communication technology. The theoretical diversity that characterizes this period, by contrast, results from a self-conscious effort by scholars to understand technology more robustly.

Even so, these works consider the content of communication as given rather than an endogenous product of the causal chain. With few exceptions, little research considered how different media structurally constrained information passing through it. To return to Putnam, the line between technology and behavior begins when a television is playing a broadcast. Putnam does not seriously take up the idea that the medium of television structurally incentivizes certain types of content which may then be more likely to produce asocial behavior. Putnam's argument is not that possessing a 3 ft chunk of plastic and vacuum tubes is sufficient to generate anti-social tendencies. Rather, he makes assumptions about the information such a technology broadcasts.

In fairness, this lies beyond the scope of the given work, but subsequent works that take up his hypothesis largely fail to delve into these mechanisms. This is at least partially understandable given the limitations of data collection in the 1980s and 1990s. The processes that inform radio and television programming are not transparent, nor would collecting such information have been particularly illuminating. Television and radio are commercial enterprises and as such, it can be assumed that the structural constraints on information that pass through those mediums are primarily those which have already been well articulated by rational actor or Marxist theories.

This second wave of literature put the scholarly community on a trajectory that emphasizes the importance of theorizing outcomes unique to media. As television's

dominance over the culture wanes, so too does the glut of literature concerning its influence.

Interest in the relationship between communication technologies and political behavior picks up once more in the early part of the millennium. The rise of the internet and prevalence of mass-protests lend themselves to scholarly examination and a re-evaluation of prior theories. Further facilitating this inquiry is the extent of data availability. Social media, especially in the first decade of its proliferation, produces running accounts of unfolding social phenomena at the individual scale. With access to such fine-grained data, scholars put increasingly complex statistical tools and growing computing power to work. So-called ‘Color’ revolutions across Eastern Europe and the Arab spring put social media at the center of mass movements. Examine such dynamics constitutes the bulk of literature that revives the study of communication technologies and political outcomes.

Early in this wave of literature comes a renewed interest in voting and campaigning. Electoral campaigns in developed democracies utilize the internet and cellphones to drive voter turnout campaigns and organize volunteers. Moreover, the spread of these technologies is theorized to have influences on democratic participation outside the context of electoral efforts. The scholarly literature takes up the topic with gusto. Haenschen (2016) shows that social-media campaigns are largely successful in encouraging voters to vote while Bond *et al.* (2012) show that network effects also drive individuals to vote. Peer pressure, it seems, works quite efficiently through social media.

However, social movements soon become a central concern in the literature ². While the prior wave of literature on this topic expressed a fair bit of theoretical

²See Tufekci and Wilson (2012), Lim (2013), and Lowrance (2016) for notable explorations of social movements in Egypt, Indonesia, and Tunisia respectively

diversity, the vast majority of works concerning social media and social movements builds on the collective action framework. To an extent, the availability and characteristics of available data lend themselves to this approach. Collective action theory assumes rational actors and is built at the individual level. Data collected from Facebook and Twitter are also aggregated to the individual. This confluence results in a literature that is methodologically innovative if theoretically limited. Steinert-Threlkeld (2017) for instance, argues that social media allows for better coordination between protesters. Likewise, Easley and Kleinberg (2010) argues that social media eases the process of sparking a collective action cascade. Social media and the internet intensify perceptions of protest participation and influence the rational calculations that inform protest participation.

This strong theoretical preference carries over into other domains as well. Interest in the relationship between ethnic conflict and cellular penetration is heavily influenced by this theoretical turn. Pierskall and Hollenbach (2013) seminal piece considering organized anti-state ethnic conflict on the African continent builds on these foundations. They argue that cellular penetration reduces the cost of organization and makes anti-state activities more feasible. The African continent serves as an interesting case for this study as prior technologies failed to make inroads before cheap cellphones overtook society. The availability of this technology and the drastic manner in which it reduced the cost of long-distance and immediate communication had, according to Pierskalla and Hollenbach, meaningful impacts.

Numerous authors build on this initial finding, each adding information gleaned from unique contexts. Shapiro and Weidmann (2015), for instance, find that cellular penetration lead to less ethnic conflict in Iraq during the American Invasion. Cellphones, they argue, backed by strong anti-insurgent programs, acted as tools to connect Iraqi citizens to resources that would allow them to report possibly desta-

bilizing actors. While this study offers an example of the inverse relationship, it is critically important insofar as it represents the point at which scholars begin to seriously theorize on the type of information the given network facilitates. While not quite examining the structural conditions of communication on the network itself, Shapiro Weidman understand that contextual factors constrain what type of information is likely to proliferate through a network. These authors theorize on cellphones not just as a tool for solving information asymmetries or the collective action problem, but as a medium embedded within a greater contextual landscape. Cellphones would clearly not have had the same influence in Iraq had their proliferation not gone hand in hand with programs that enabled citizens to collaborate with the American military.

Another work by Warren comes to a similar conclusion (Warren, 2015). Warren finds that cellular penetration does increase the likelihood of organized ethnic conflict in Africa but that the presence of radio mediates this effect. Warren argues that radio is a tool for state propagandizing and that the capacity for cellphones to link individuals is mediated in the presence of a technology that links individuals to the state. Radio facilitates vertical bonds while cellphones facilitate horizontal bonds. While methodologically impressive, Warren's biggest contribution is the step towards theorizing on the structural constraints different media types impose on the information they facilitate. Warren insightfully argues that the type of messages radio and cellphones convey are fundamentally different. Radio lends itself to long-form and repeated propaganda in a way that text messages do not. Radios are central, broadcast to huge numbers of people, and are controlled by a limited group of people. Cellphones do and are none of these.

Baillard makes a similar contention (Baillard, 2015). Examining cellphones in ethnic areas worldwide and in the context of Myanmar specifically (Bergren and Baillard, 2017), Baillard concludes that rurality plays a mediating role in the relationship be-

tween cellphones and ethnic conflict. While Bailard attributes this to the marginal increases in communicative ease rather than the broader proliferation of grievances, it should be noted that Bailard, along with many other scholars in the field, assume the type of information that is most suited to passing through cellular networks. Given that the dependent variable of interest in each of these studies is acts of organized, anti-state activity, these authors assume that tactical information regarding the execution of violence is what people are using cellphones to communicate. This assumption is most strongly felt in Pierskalla Hollenbach and Baillard's work for good reason. These authors draw on literature that characterizes organized anti-state activity as stemming from compartmentalized institutions. Ethnic militias segregate information, doling it out to only those who need to know. Cellphones are perfectly suited to relaying this type of information. They facilitate limited networks that allow for the controlled dissemination of sensitive information.

In sum, these works have converged on robust consensus concerning cellphones and organized ethnic conflict. Cellphones facilitate organized ethnic violence because they enable the resolution of collective action problems that are exacerbated by distance and rurality.

1.3.2 Riots

Running in parallel to this thread of inquiry is a literature concerning ethnic riots. In contrast to the literature on *organized* ethnic conflict, this literature exhibits more than one common theoretical foundation. Electoral, civil society, material, and psychological accounts of spontaneous ethnic conflict each contribute to a holistic understanding of the phenomenon. The factors that 'push' and 'pull' rioters towards their deadly task are well-explored and the distinction between these activities and organized ethnic conflict is worth making. This strand of literature is worth exploring.

The disaggregation of ethnic riots from other types of ethnic conflict in the modern era is traceable to Horowitz's 'Ethnic Groups in Conflict' (Horowitz, 1985). In it, Horowitz notes the counterintuitive nature of the riot. While prior works theorized on the riot as an anomalous excitation of passions or the collective effervescence of a crowd, Horowitz moved the phenomenon into a more methodical domain. Riots are often planned, Horowitz notes, and are equally as often capitalized upon by calculating actors. This is not to suggest that Horowitz reads riots as primarily instrumental. In his later 'The Deadly Ethnic Riot', he rejects such readings as implausibly cynical and as imputing untestable motivations to those organizing such events; a critique that has retained its edge over time (Horowitz, 2001). Riots, per Horowitz, are primarily about violence towards an 'other'.

A plethora of works follow Horowitz which expanding upon and diverging from his original approach. While some of these approaches provide more compelling accounts of ethnic riots than others, each implicitly emphasizes why riots ought to be theorized distinctly from organized forms of ethnic conflict. Wilkinson's popular electoral approach (Wilkinson, 1984)³, argues that riots are precipitated by self-interested electoral actors. Among the approaches to ethnic riots, Wilkinson's diverges most notably from Horowitz's. Wilkinson and those who follow argue that riots are instrumental in nature and that they are stoked by self-interested electoral candidates who stand to benefit from a highly polarized ethnic environment.

While Horowitz's original critique of implausibly cunning actors holds, the Wilkinsonian account of ethnic riots illuminates a distinction between organized and spontaneous ethnic conflict insofar as ends are concerned. Organized ethnic conflict occurs

³See also Berenschot (2011); Dunning (2011), and Iyer and Shrivastava (2018) who follow in Wilkinson's theoretical footsteps and Varshney and Gubler (2012) who offer a rebuttal of these accounts.

at the state level and aims towards state-level goals; separatism and autonomy are not individually realizable ends. By contrast, even in the most explicitly instrumental and ‘political’ account, ethnic riots are stoked for individual gain and speak to communal dynamics. The scales at which these two behaviors take place and the ends to which they aim are fundamentally different.

The civil society explanation for riots, pioneered by Varshney, also illuminates a distinction between the two types of ethnic violence (Varshney, 2001). Varshney and those who follow argue that cross-cutting civil society institutions militate against ethnic riots⁴. These institutions provide an outlet to quash misinformation, allow minor grievances to be addressed before they coalesce into major ones, and build dense networks within diverse societies. Such an account of ethnic riots cleaves more closely to the original Horowitzian one and highlights a second distinction between organized and spontaneous forms of ethnic conflict. Riots, by this account, are behaviors of passion. In contrast to organized ethnic conflict, ethnic riots are intense, sudden, and dramatic. They are characterized by convulsions of society rather than by the methodical, persistent, low-intensity skirmishes of organized ethnic conflict.

Though these two approaches are the main theoretical approaches found in the literature, material explanations for the prevalence of ethnic riots are also numerous. Though they approach the topic through various theoretical lenses - collective action, relative deprivation, and resource mobilization - they can be summarized in the aggregate as they share a common weakness that hinder their explanatory power.

Material explanations for the prevalence of ethnic riots are generally built at the individual level and center on the availability (or lack thereof) of resources. The lack of resources relative to other groups can foster a sense of grievance and push individuals to riot. Likewise, access to resources such as communication technologies

⁴See also Orjuela (2003) and Chandhoke (2009) who follow in Varshney’s theoretical footsteps

wealth make the organization of riots feasible. At their most rational, these accounts take rioting as a collective action problem, participation in which can be increased through material selective incentives.

However, attempts to explain individual participation in riots in this manner have tended to yield disappointing results. Riots are, seemingly, unexplainable by absolute or relative levels of deprivation (Scacco, 2016). Reducing other barriers to participation including the relay of information likewise has seemingly little influence on riot participation. Studies including (Olzak, 1996) have come to the general conclusion that ‘pushing’ rioters towards their task is insufficient. For a riot to occur, other, less material circumstances need to align.

There are two ways to address the claim that economic deprivation alone is an insufficient predictor of riot participation; one stemming from the collective action literature, the other drawing on literature concerning ethnic segregation.

Resource mobilization is one way to make sense of the weak inverse relationship between absolute degrees of poverty and the likelihood of ethnic riots. Through the lens of resource mobilization, violent collective action requires some modicum of resources to accomplish (McCarthy and Zald, 1977). Communication, organization, and execution make demands on participants’ time and wealth; demands that are met by those with access to financial and time resources. Thus, while the destitute may have the most ‘objective’ reason to riot insofar as they have the most to gain by doing so (Gurr, 1970), they have the least capacity to do so. Resource mobilization accounts of ethnic riots assume that groups possess the same - or at least a very similar - underlying propensity for violent collective action. The observed variance in actual riot participation stems from the capacity of each group to leverage resources; capacity influenced by the political structure that shapes incentives and potential payoffs for rioting (Tarrow, 2011).

This account, however, is deficient in explaining the prevalence of riots on two fronts. First, it overpredicts the likelihood of riots in wealthy regions of the world. Globally, wealthy nations experience fewer riots than poorer ones despite privileged populations possessing an abundance of resources to participate in them (Gurr, 1994). Moreover, economic growth tends to be correlated with a depression of ethnic riots, not an increase in them (Bohlken and Sergenti, 2010). For instance, ethnic riots are rarer in post-industrial East Asia, Western Europe, and parts of North America than they are in South and Southeast Asia and Sub-Saharan Africa. In an absolute sense, states in the former categories possess greater resources than those in the latter. And yet, ethnic groups in these states seemingly prefer not to participate in riots, at least not to the extent that a purely materialist examination of riots would predict.

Second, these accounts overestimate the degree to which ethnic riots necessitate significant resources. Simply put, it doesn't take much to riot. The material, communication, and time investment required to undertake a riot are low. Riots can be effectively executed with a handful of people and rarely require the kind of coordination that mass protests or extended anti-state campaigns do. Moreover, the instruments of violence most often utilized in riots are readily accessible to even the most destitute populations. Ropes, canes, kindling; mundane objects become tools of the mob more often than guns or artillery. Vast stores of financial capital and time need not be mobilized to accumulate such items. From this perspective, the absolute cost of a riot is trivial. It is difficult to imagine how impactful any intervention would be in further lowering the cost of such an already easy to execute activity.

Even so, the material circumstances of a group's position in society may play a different role in sparking spontaneous ethnic conflict. Poverty relative to other groups may incite greater levels of grievances among the disadvantaged group which may translate into a higher propensity for violent behavior (Gurr, 1970; Davies and

Gurr, 1969). While such a ‘grievances’ explanation of violent collective action is one step removed from a purely material explanation, it nevertheless relies on a close link between the material circumstances of participants and their psychological state. Material deprivation relative to some privileged group ought to cause greater levels of grievance, the logic goes. Even so, this account is similarly deficient in explaining riots.

Absolute levels of deprivation, and by extension grievances, seem not to translate well into a propensity for violent collective action (Miller *et al.*, 1977; Olzak *et al.*, 1996). The case of the United States provides compelling evidence. In every meaningful sense of the term, the country’s black population experienced far greater levels of material deprivation than its white population throughout the Reconstruction and Jim Crow eras. And yet, the majority of ethnic riots for much of the country’s antebellum period - lynching, in this context - were carried out by the economically and demographically dominant group (Tolnay and Beck, 1992; Tolnay and Glenn, 1996). The white population, by materialist grievance accounts, had far fewer reasons to riot than the black population. They were, and continue to be, materially privileged. Even in a relative sense, the position of the white population in society at the abolishment of slavery was in no meaningful way threatened. Why then do we observe the group with the least material grievances engaging most frequently in ethnic rioting?

Accounts of ethnic riots that rely chiefly on material circumstances fall short of providing a compelling answer to this question. Given different frameworks, they at once over-predict the propensity of the wealthy and the poor to riot. The material circumstances of a group’s position would appear to be an incomplete explanation for that group’s propensity for rioting. If rioting is a resource-constrained activity, why don’t the wealthy riot more? If a lack of resources causes grievances and increases the propensity to riot, why don’t the poor riot more?

While material arguments are important insofar as they give us a sense of the conditions under which riots are possible, they do little to illuminate the inner mechanisms driving rioters in the first place. Such explanations suggest how a given material intervention might influence the likelihood of riots but in doing so, minimize individual agency and the complex processes that precede and inform rioting behavior. Material explanations for riots reduce participants to automata reactive to the structural conditions under which they live; they are helpful but incomplete models of human behavior. Mechanisms beyond the purely materialist that influence the underlying propensity to riot in the first instance deserve more attention.

1.3.3 Performativity

Though alien to ethnic conflict studies in Political Science, the canon on performativity has informed much work among political theorists and scholars in more critically oriented fields. This theoretical approach seeks to understand behaviors that collectively create meaning. Rather than interrogating the relationship between cause and effect, this strand of literature attempts to draw out how and why certain practices play a role in identity formation. In the context of ethnic riots, performativity is an important conceptual tool.

Foucault provides an interesting entry into this concept. Examining the purpose and role of state punishment, in ‘Discipline and Punish’, Foucault interprets the gratuity of state executions in pre-revolution France as serving an awing purpose (Foucault, 1975). Foucault argues that the spectacle and performance of gratuitous violence by the state holds utility as a meaning-making practice. The absolute authority of the monarch is legible in the performance it inflicts upon the bodies of the condemned. Quartering, drawing, breaking individuals on the wheel; these practices are gratuitous by nature. Foucault’s analysis of these practices as primarily meaning-making

is captured in the following:

”The very excess of the violence employed is one of the elements of its glory: the fact that the guilty man should moan and cry out under the blows is not a shameful side-effect, it is the very ceremonial of justice being expressed in all its force. Hence no doubt those tortures that take place even after death: corpses burnt, ashes thrown to the winds, bodies dragged on hurdles and exhibited at the roadside. Justice pursues the body beyond all possible pain.”

Several political theorists have applied this concept to the analysis of political behaviors⁵. Protest (Juris, 2015), anti-state violence (Rhodes, 2001), and identity formation (Buford, 1990) have all been analyzed through the lens of performativity. In particular, ideas surrounding performativity vis a vis ethnic identity have contributed greatly to our understanding of why and how ‘out’ groups are constructed. Though not explicitly conceptualized as such, constructivist accounts of ethnicity have expanded on the topic using many of the same underlying ideas. Anderson’s ‘Imagined communities’ envisions ethnic identity as being constructed through the behaviors of participants (Anderson, 1983). Identity is imbued with meaning through the construction of domain-specific knowledge.

Still, the mainstream canon of conflict studies rarely conceptualizes violence as a meaning-making exercise. Of the few pieces that do adopt this lens, Fuji’s work on extra-lethal killings is foundational (Fuji, 2013). Fuji notes the prevalence of gratuitous political violence, correctly observing that these behaviors serve no utilitarian purpose. Post-mortem mutilation (Lantz, 2016), rampant sexual violence (Cohen, 2016), and lynching (Wiegman, 1993) are not behaviors that are calculated to max-

⁵For a review of concepts including performativity and semiotic practices, see (Wedeen, 2002)

imize a political outcome with the minimum effort invested. They are, Fuji argues, gratuitous by nature. Several works build on this foundation and flesh out the idea of performance. Performances, (Buckley and Kenney, 1995) argue, necessitate audiences. They must be performed in a language legible to observers. They require the tacit consent of their audience.

These concepts make gratuitous behaviors understandable. Though not yet widespread in the study of ethnic riots in Political Science, they provide tools for the analysis of phenomena such as nationalism and group-level ethnic conflict. This work seeks to incorporate these concepts into the study of spontaneous ethnic conflict.

1.3.4 Summary of Deficiencies

A review of the extant literature reveals three deficiencies. First, the collective action framework holds a near monopoly on theory building. Second, the scope of ethnic conflict considered in this literature is focused nearly exclusively on organized forms of ethnic conflict. Such a limited focus excludes the myriad behaviors that constitute ethnic conflict, broadly understood. Third, the role of technologies other than cellphones on ethnic conflict is understudied.

What can be done to address these shortcomings? First, a recognition of the limitations of the collective action framework is necessary. While this scaffolding provides excellent support for the analysis of behaviors that are rationally motivated, not all behaviors align with the assumptions of the rational actor. To force such a framework risks saddling theoretical models with inappropriate assumptions. In the context of this work, performativity and network theory take up the task of reformulating theoretical foundations. Second, spontaneous ethnic conflict deserves serious consideration. Riots, specifically, have been underexplored vis a vis communication technology. Thirdly, the internet ought to be considered seriously insofar as its effect

on ethnic conflict is concerned. While numerous other strands of literature have long since made the shift to examining the internet as a meaningful independent variable, the literature on ethnic conflict has not made the same jump.

In sum, while the literature on ICTs and ethnic conflict has largely settled on a robust consensus with regards to organized ethnic conflict, a great deal of uncertainty remains when examining other types of ethnic conflict. Addressing this gap will require:

1. A re-formulation of the theoretical foundations that inform our models of spontaneous ethnic conflict
2. A renewed focus on technologies distinct from cellphones
3. A shift in attention towards other types of ethnic conflict behaviors.

In the following chapters, I undertake these tasks.

1.4 Chapter Outline

Chapter 2 and 3 articulate the theoretical argument concerning the link between ethnic riots and the internet. Chapter 2 examines riots through the lens of performativity. Instead of assuming rational actors making utilitarian calculations, I argue that spontaneous ethnic conflict is better understood as a performance intended to reduce ambiguity in the known social structure. Thereafter, I draw on network theory to show how the structural constraints imposed on information passing through varying ICTs has theoretical implications. I show why this implies a distinction between the internet and cellphones. Finally, I bring these two strands together, showing that the internet provides a platform uniquely suited to the dissemination and reaction to ethnically performative behavior. The internet facilitates crowd-performer interaction in a way that prior technologies do not.

Chapter 3 presents results from cross-national analysis of internet penetration and riot likelihood. This chapter provides evidence that network characteristics are meaningful and differentiate cellphones and the internet. Further, I draw on quantitative results to show that, the effect of the internet on the likelihood of ethnic riots is contingent on a threshold, consistent with network theory.

Chapter 4 undertakes a case study of India, showing why the proliferation of a state-sponsored, affordable internet program reduced the likelihood of ethnic riots in that country. This chapter brings the contextual conditions of the relationship into clearer focus. I note the distinction between privately and publicly funded internet infrastructures, showing that while the former amplifies network insularities, the latter subverts them and diminishes the necessity of violent ethnic performances. Moreover, I use a novel dataset to quantitatively test these hypotheses.

Chapter 5 concludes the work by summarizing the arguments laid out in chapters 2 through 4, reflecting on areas for future study, and commenting on the often-lost critical aspect of conflict studies. While studies of communication technology and ethnic conflict strive for ever-increasing statistical rigor and complexity, I argue that such single-minded pursuits have left the literature devoid of a moral voice. The critical ‘so what’ question remains unanswered in the face of mountainous statistical evidence. If the proliferation of cellphones and the internet do cause violent ethnic conflict, what do we do about it? What policy and ethical implications does such research imply? What role does the researcher play in uncovering and (presumably) addressing such relationships? These questions have gone largely unanswered in the canon and deserve greater attention.

Chapter 2

THEORY - RIOTS

What is the purpose of an ethnic riot? In this chapter, I argue that riots are primarily performative in nature. They serve to address intolerable ambiguities in the social hierarchy by clearly reinforcing group boundaries for participants and observers.

To make this contention, I draw on various strands of scholarly work. I begin by expanding on the societal conditions that precipitate riots, borrowing from literature in political science and sociology that identifies rapid changes in social structure as uniquely destabilizing. The perception of relative change incites intolerable ambiguities within a community.

Beyond this, I delve into the idea of a riot as a performative event. Scholars have noted that collective acts of violence can be well-understood in their capacity as meaning-building activities rather than as purely utility-maximizing ones. Within this framework, riots are useful not only to the extent that they achieve material victories but to the extent that they are widely understood to have resolved the underlying social ambiguity. Rioters often target seemingly trivial places or people and visit gratuitous violence on them. An understanding of riots as performative makes sense of these dynamics; rioters aren't inefficient executors of violence seeking an economic end. Gratuity is the point.

2.1 Why Riot?

Perceived ambiguity concerning social position is the chief cause of riots. This ambiguity is related to but is distinct from the material conditions of social life. Groups experiencing the greatest degree of deprivation are rarely those which riot and when

they do, they rarely riot to the extent we would expect (Olzak *et al.*, 1996). Instead, it is the perceived muddying of a group’s social position that introduces intolerable ambiguities that demand resolution. Therefore, it is often the majority group that resorts to rioting. While dominant in an economic and demographic sense, majority groups feel a sense of siege from what they perceive to be a changing social order. Hindus in India and the Bamar in Myanmar each have a near monopoly on power within their respective states and yet, in the face of an increasingly heterogeneous society and expanding, global, and liberal norms of tolerance, are more likely to engage in riots than their minority counterparts. When they do, rioters tend to target symbolically salient landmarks or engage in ritualistic behaviors that hold great meaning for in-group members. The destruction of the Babri Mosque in India and recurring anti-Muslim riots in Myanmar give testament to this dynamic. This is because riots serve as performative behaviors that aim to resolve intolerable ambiguities by clearly delineating the boundaries between in and out-groups.

Two contentions constitute the core of this argument and deserve consideration. First, the perception of ambiguity over social rank drives riot participation. Second, riots are performative behaviors in that they are intended to resolve said ambiguity through the reinforcement of group boundaries through symbolic actions. The following considers each in turn.

2.1.1 Societal Ambiguity

Perceived ambiguity over social rank is the chief driver of rioting. This perception of ambiguity is often sparked by destabilizing events. Scholars have long argued, for instance, that the rapid change in the demographic makeup of communities incite ethnic riots (Olzak *et al.*, 1996; Bergesen and Herman, 1998). The mass influx of an ethnic group excites a sense of siege in the demographic majority, drawing into

question their presumed position in the social hierarchy.

This explanation argues that the objective distribution of ethnic groups is not in itself driving rioting. Integration and segregation incite riots not because participants are keen observers of demographic trends who understand their group's exact numeric (dis)advantage relative to the greater population. Such a contention would require that people have access to perfect information regarding the demographic distribution *and* that they would act according to a clearly identifiable rational calculus to maintain their demographic superiority. Very little about rioters' behavior suggests this is the case. Rioters aren't rioting to drive down the other group's numbers to maintain their demographic majority. Were this true, riots would be more common in places with precarious majorities or previously well-integrated communities - both of which have been shown to be particularly resilient to ethnic riots (Varshney, 2003; Wilkinson, 1984).

Instead, rioters are responding to the psychological anxiety that shifting demographics entail. Sudden shifts in the demographic distribution call into question the contours of group identity that may have been previously well-understood. In communities characterized by ethnic homogeneity, such a destabilization can be particularly pronounced. Without regular interaction with a variety of other groups, the boundaries of group identity are poorly delineated and are uniquely susceptible to blurring.

Civil-rights era integration programs in the United States dramatically shifted the ethnic layout of communities and serve a compelling case for this argument. During this period, it was not the communities with the highest levels of economic grievances that experienced the greatest number of riots. Exceedingly poor and overwhelmingly black communities remained relatively peaceful despite high absolute levels of poverty and structural deprivation. Instead, communities which experienced the greatest

change in the balance of ethnic composition convulsed with the greatest amount of violence (Olzak, 1996).

Even small shifts in the distribution of resources can raise anxieties concerning each group's position relative to the other. This anxiety is built at the micro-scale. The perception of social position constitutes a significant part of an individual's understanding of their role in society. Well-articulated social roles clarify expectations, rights, and responsibilities incumbent on the individual. They facilitate interactions between individuals and set the boundaries within which stable power dynamics emerge and are maintained.

The perceived blurring of these boundaries causes anxiety for the extent to which it throws these clarifications into flux (Gould, 2003; Fiske and Rai, 2014; Bender-sky, 2012). While lived changes such as massive integration projects can spark such anxieties, inciting incidents need not be so dramatic. Rhetoric that is successful in injecting ambiguity can alone be sufficient for sparking ethnic anxiety.

This detail helps makes sense of the widespread recognition of the importance of rumors as immediately antecedent to the outbreak of ethnic riots (Horowitz, 2001). Rumors exaggerate the threat of an outside group, amplifying or even creating threats to the social hierarchy whole cloth. While direct observation of changing demographic patterns can serve to spark the perception of such threats, most rioters aren't responding to such direct observations but rather the intense information ecosystem that springs up around such observations and their associated, distorted retellings.

In homogeneous communities, rumors regarding a rarely encountered minority may be sufficient to excite a sense of siege in the group. In the absence of institutional checks on the spread of misinformation, recipients perceive this new information as existentially threatening to the social order. Rumors inject ambiguity into the known social order by distorting the social standing of an out-group. The sudden reorienta-

tion of the social order throws the self-perceived social standing of the individual into flux. Heterogeneous communities militate against the inflammatory power of rumors by allowing mundane performances of ethnicity to meaningfully reinforce the boundaries of ethnicity (Varshney, 2003). Homogeneous and insular communities make these performances meaningless and necessitate drastic performances. Rumors alone do not cause riots but lay bare the weaknesses of particular networks of information. Where networks lack the capacity for self-correction vis a vis misinformation, rumors proliferate and riots follow.

The viral spread of misinformation through insular networks of communication is critical to inventing and reinforcing a widespread sense of ambiguity over the social structure. Critical to the ‘success’ of a rumor is its ability to stick; i.e. how effectively can a piece of misinformation infect a community and is it resistant to rectification when confronted by complete information? Insular communities, meaning those with little recourse to a greater information ecosystem, are uniquely susceptible to this type of infection. Rumors spread easily through locally dense but globally sparse networks. Nodes broadcasting information that might ‘rectify’ rumors are only peripherally connected to insular communities while nodes broadcasting misinformation are densely connected. Moreover, these networks echo rumors; repetition validates misinformation and amplifies the perceived threat. Just as tales often grow in the telling, rumors are endlessly distorted and amplified in their spreading (Hassanpour, 2018).

The extent to which highly segregated clusters foster the contagion of misinformation cannot be overstated. Misinformation propagates through locally dense but globally isolated networks even when ‘credulous’ nodes are far outnumbered by ‘incredulous’ nodes globally. Globally dense networks militate against the spread of misinformation by connecting each ‘credulous’ node to numerous ‘incredulous’ ones.

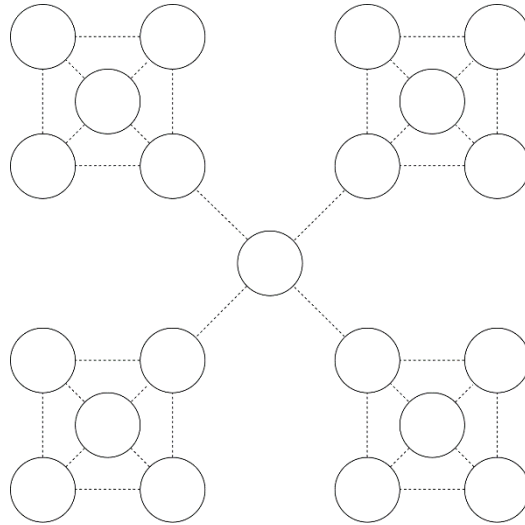


Figure 2.1: Locally Dense Network

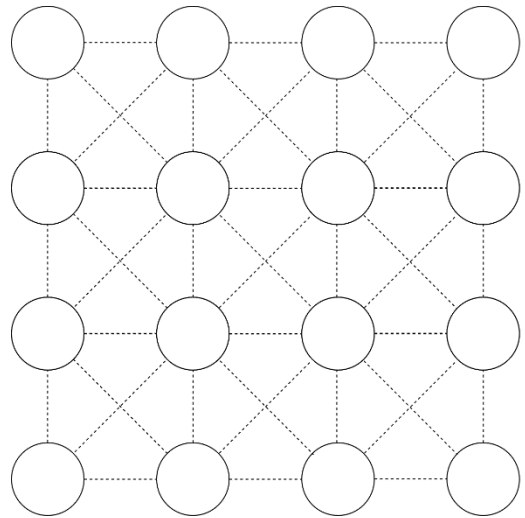


Figure 2.2: Globally Dense Network

By contrast, locally dense but globally sparse networks have an increased likelihood of containing clusters where the number of ‘credulous’ nodes is large enough to prompt acceptance of false information among a significant number of nodes within that cluster. Local clusters ‘infected’ by misinformation in turn increase the likelihood that nodes peripherally connected to said cluster are likewise infected. Contagion of misinformation is facilitated through the global network by the concentration of ‘credulous’ nodes in otherwise segregated clusters. Insularity makes the contagion possible.

Such network dynamics help to make sense of the observation that well-integrated societies experience few riots while highly segregated ones are uniquely susceptible to the proliferation of rumors and appear far more sensitive to ethnic ambiguity. Integrated communities militate against the spread of inflammatory rumors and address societal ambiguity by confronting misinformation early on. Rumors are unlikely to proliferate in an information environment that is densely inter-connected. By contrast, highly segregated communities appear sensitive to even the slightest ethnic ambiguities because they fail to facilitate the kind of quotidian sharing of information that might quash rumors before they infect whole communities.

Rumors and propaganda propagate with lightning speed through ethnic networks in highly segregated societies while diverse and densely interconnected societies exhibit higher degrees of resistance to misinformation and rumor mongering. How Information Communication Technologies facilitate or militate against the emergence of such networks will be explored further on. Suffice it to say, information is the currency through which ethnic boundaries are bought. When that information is misleading or purposefully inflammatory, local perception of prior boundaries blurs thereby necessitating behaviors that resolve said ambiguity.

2.1.2 Riots as Performance

Articulated most clearly by Lee Ann Fuji, one persistent question plaguing the literature on conflict is that of gratuity. Conceptualized as ‘Extra-Lethal Violence’, Fuji asks what the purpose of behaviors such as post-mortem mutilation, sexual humiliation, and torture are (Fuji, 2013). If a genocide is an effort to wipe out one group, why bother torturing them beforehand? If rioters want to assert their societal dominance by cowering minority populations, why bother humiliating victims publicly before murdering them? What marginal utility is gained by expending extra effort

and risking legal sanction that the acts of killing or maiming do not already provide? In responding to this question, an increasing number of scholars have begun examining violence through the lens of performance. While violence may serve some utilitarian ends, these authors argue that conceptualizing collective violence as a performance helps to make better sense of the gratuity that often accompanies behaviors such as the ethnic riot.

Performances, in this framework, are behaviors imbued with meaning as a result of the context within which they occur, and which are carried out with the intention that they be consumed and reflected upon by an audience (Edelman, 1971). Performances are meaningful not as a result of the particular behaviors being undertaken but by the context within which they occur (Bauman, 1992). As Fuji notes, the actions undertaken during performances are generally not uniquely associated with said performance (Fuji, 2013). In the American context, guns are fired into the air to celebrate July 4th and at the funerals of important members of society. The same behavior implies dramatically different meanings in each context. The former performance invites a sense of glee and revelry while the latter marks an occasion of mourning and reflection.

The gratuitous behavior that characterizes ethnic riots is similarly contextual. Murder and violence are not unique to the perpetration of a riot but take on new meaning within its context (Horowitz, 2001). Likewise, the gratuity with which ethnic riots are undertaken speaks to the meaning participants are attempting to perform. Take the case of Tabrez Ansari in India. Ansari, a Muslim, was forced to chant ‘Jai Shree Ram’ (Hail Ram) at the behest of his Hindu captors. After doing so, the mob beat Ansari to such an extent that he succumbed to his wounds several days later in a jail cell. The mob recorded and disseminated a video of the incident afterwards (Das, 2019). No single event or combination of events in this scenario is uniquely

associated with a riot. Observant Hindus chant ‘Jai Shree Ram’ regularly and, while disheartening, mob violence is not limited to the execution of a riot. Instead, it is the context of the riot which makes these behaviors meaningful. The act of gathering co-ethnics and physically asserting a position of superiority contextualizes Ansari’s chanting of ‘Jai Shree Ram’ in a menacing light.

The conceptual framework of ‘Extra-Lethal Violence’ helps to isolate the coerced chanting as worthy of examination and critical to understanding the perpetration of the riot in the first place. Rioters expended a not-insignificant amount of effort in coercing Ansari to chant and in recording that coercion, exposed themselves to a greater degree of legal risk. Simply recording the murder of Ansari while taking steps to anonymize their appearances (e.g. wearing masks, standing offscreen and shooting Ansari) would have achieved the same utilitarian ends but Ansari’s tormenters chose not to do so. In this scenario, the context of impunity and flagrant lawlessness further imbues Ansari’s chanting with meaning that would be widely understood by those consuming the video. Viewers of the video would understand the intent: Muslim and other minority citizens of India ought to remember their place; India is a Hindu nation. In examining ethnic riots through this lens, we can understand gratuity as central to constructing meaning and as the thrust behind the behavior in the first place. Gratuitous behavior is not a supplement to the core behavior of rioting; it is the reason for rioting in the first place.

Performative behaviors are also undertaken with an eye towards consumption. Performance necessitates an audience to be meaningful (Bauman, 1992). Active participants take on roles while observers express either their approval or disapproval. The interplay between riot participants and tacit observers has long been observed in the scholarly literature. While riots and acts of communal violence may only be undertaken by a very small minority of the given group in question, the tacit support

of the group signals to participating individuals that their actions are communally accepted and hold social value. In studying clashes between Irish Republican mobs and British Police, Anthony Buckley and Mary Kenney observe rioters actively escalating tensions with well-armed police forces, fully understanding the risks associated with doing so for largely performative and symbolic purposes (Buckley and Kenney, 1995). Rioters are fully aware that the likelihood of serious bodily harm coming to them is high. They nevertheless engage in such behavior at the behest of the crowd observing them. The audience is not comprised of otherwise ‘neutral’ observers who express no preference for the actions of the rioters. Given that observers far outnumber active participants, the tacit support of the crowd is a necessary condition for a meaningful bout of communal violence. Without the crowd, riots fizzle; a performance is rendered pointless without an audience.

A riot, understood as performance, is the reaction of a community to perceived ambiguity in the known social structure. Whereas mundane acts of social performance are adequate to reinforce the boundaries of ethnicity in a social structure perceived to be stable, such performances fail to address threats perceived as being existential in nature. Instead, greater perceived ambiguities in the social situation demand more drastic measures. Riots are undertaken by individuals for whom the boundaries of ethnicity have become intolerably blurred. As the literature on integration notes, most riots occur at the boundaries between otherwise homogenous neighborhoods (Olzak, 1996). Rioters conceivably target areas nearest to them that allow them to easily label the ‘other’ and restore a sense of contrast to the ethnic identity. Lines are very clearly drawn between ‘us’ and ‘them’ when rioters partake in symbolic and gratuitous violence against the out-group and broadcast that violence to co-ethnics.

2.2 Conclusion

Ethnic riots ought to be understood as performances that aim to resolve societal ambiguity. While prior works on the relationship between communication technologies and ethnic conflict have built on the collective action framework, such an approach is inadequate to understanding riots. Riots are behaviors that are nearly always gratuitous in nature. They concern symbolic behaviors and participation in them entails motivations beyond the immediately material. This work attempts to re-orient the analysis of ethnic riots towards a more structuralist view of ethnicity in which individuals react to and reconstruct the boundaries between groups through performative behaviors.

This shift in the contextualization of riots is important for deeper analytical reasons as well. Shifting our focus from the material conditions facilitating riots to the psychological ones driving communities to riot allows us to theorize the effect of different interventions with greater robustness. Under resource mobilization frameworks, such theorization inevitably collapses into a calculation of the ‘costs’ that a given intervention raises or lowers, even when the marginal effect on those costs is so small as to be substantively meaningless.

As is explored in the next chapter, this theoretical foundation helps make sense of why certain communication technologies facilitate the likelihood of riots while others do not. The spread of misinformation and its consequent effect on perceived social ambiguity are key to the arguments made here. Further, the performative aspect of riots help make sense of what precedes and proceeds a riot. Riots are gratuitous at the behest of an audience. Some technologies produce those audiences while others do not.

Chapter 3

THEORY - INFORMATION COMMUNICATION TECHNOLOGY

The internet and social media have garnered immense scrutiny in the wake of several high-profile cases of ethnic violence. Most recently and obviously in Myanmar, the technology has been cited as facilitating the spread of misinformation and inflaming already tense ethnic relations (ICJ, 2019; Stecklow, 2018).

In this section, I argue that the internet uniquely facilitates the likelihood of riots due to the unique pathways of information it is capable of creating. I argue that such networks are reflective of in-person networks and intensify the insularity of already isolated communities. This dynamic is unique to the internet among modern ICTs and allows for the rapid spread of destabilizing information through community clusters. Moreover, I argue that the internet is structurally organized to disseminate the performance of rioting to a large audience with great efficiency, thereby amplifying the effect of a riot after the fact. The internet is unique in facilitating these outcomes due to the characteristics it exhibits as a ‘scale-free’ network. Unlike other technologies which create ‘random’ networks, the internet possesses characteristics that encourage localized clusters of nodes and unique distributions of connections which in turn have important implications for the virality and survival of misinformation.

I further argue that the internet is unique in these characteristics. Other modern ICTs, particularly cellphones, do not exhibit these characteristics due to structural differences in the types of networks they produce. The internet produces dense, many-to-many networks while cell-phones produce one-to-one networks. The former are sensitive to factors such as scale and degree of proliferation while the latter are not. As such, I argue that we should expect the effect of the internet on the likelihood

of ethnic riots to be mitigated by factors such as the rate of internet uptake.

In this section, I expand on these claims. First, I lay the theoretical groundwork that explains why the internet ought to be theorized in this manner. I draw on literature concerning homophily to support the contention that the internet turns already insulated communities further inwards. Namely, I show that densely connected but globally isolated networks facilitate the spread of misinformation. Next, I show that the internet is uniquely capable of broadcasting riot events to community members, thereby increasing the efficacy of the performance. Additionally, I show how the internet is a ‘scale-free’ network and why such a classification theoretically ties these previous strands together.

Throughout, I make the case that these characteristics are unique to the internet. While cellphones have been at the center of conflict literature, the theory articulated here does not apply to such networks. I examine differing models of network connectivity and technological proliferation and distinguish between one-to-many networks and many-to-many networks. These models explain why the preceding theory applies to the internet but not cellphones.

3.1 Homophily and the Intensification of Insular Networks

Communication technologies do not create social connectivity in a void. They reflect pre-existing, in-person networks. Technologies differ insofar as they structurally constrain information. To understand what role the internet plays in the outbreak of riots, it’s worth considering how the internet connects people in the first place and how that connectivity amplifies the effect of misinformation.

Ambiguities in a given social structure are often sparked by the viral spread of misinformation and inflammatory rumors (Gould, 2003; Allport and Postman, 1947). Why does the internet seem uniquely suited to spreading such information through

a community? Homophily, or the tendency of similarly-characterized individuals to flock together, is a widely observed phenomenon that extends to communication technologies (Bisgin *et al.*, 2012). Identity formation via the internet reflects in-person identity formation patterns (Bisgin *et al.*, 2012; McPherson *et al.*, 2015). That is to say: people flock to those similar to them.

Co-ethnics prefer to reside near one another, form group attachments along pre-defined societal cleavages, and in general reinforce existing identities by consorting with in-group members. As such, it is unsurprising that an individual's connections online are strikingly similar to their connections in-person. Co-ethnics recreate ethnic boundaries online. The internet does not transcend these boundaries, it is subject to them.

But while in-person networks are created and reinforced through face-to-face interaction and social performances that require a meaningful investment of time, online networks do not face the same limitation. Content produced by internet users persists beyond fleeting interactions and can be consumed ad nauseum. Networks created online intensify the urge towards homophily insofar as they are self-reinforcing (Flaxman *et al.*, 2016). Connections made between co-ethnics do not require active participation between individuals to be strengthened; they can be passively reinforced through the broadcast and consumption of domain-specific information.

Indeed, the all-encompassing nature of the internet sets it apart in this regard. With the exception of television, which remains a sparsely distributed luxury, other communication technologies constitute a minor aspect of an individual's life. Landline telephones and radio do not imply the same level of time investment that access to the internet does. The internet is an all-encompassing information ecosystem that eats up a huge portion of a person's time each day. Even in remote and under-developed regions of the world internet usage patterns are surprisingly totalizing

(OECD, 2016). The internet is the portal through which banking occurs, government services are procured, and the medium that allows for regular communication with distant relatives. The internet has extended its tendrils into even the most mundane aspects of an individual's life.

What further solidifies the internet's role in intensifying pre-drawn ethnic boundaries is the extent to which co-ethnics constitute the core experience. Unlike prior media, content produced for consumption via the internet is generally not produced by a handful of opinion setters. Unlike newspapers and radio, there is no central authority curating the flow of information. Given that there are few alternatives in such controlled media spaces, building insular information environments can be difficult when opinion setters are dedicated to fostering heterogenous, liberal, and tolerant societies.

By contrast, the web 2.0 paradigm places the individual at the center of the generative process, removing the necessity of bundling a diversity of opinions and rewarding content that narrowly focuses on targeted populations (Fuchs *et al.*, 2010). People are not only passive consumers of information online, but are active in its dissemination, curation, and, most importantly, production. Once online, individuals 'create' their identity by curating the information that is presented to them, narrowing down the information they interact with to the most emotionally affecting and immediately relevant. In ethnically fractious societies, such information often takes a virulently nationalistic form. Ethnic identity, highly salient outside of the internet, thus becomes highly salient within internet communities where individuals react to and intensify their exposure to content that reinforces the contours of that identity.

Such networks are uniquely susceptible to the spread of misinformation and consequently excel at creating the perception of ambiguity. Diverse communities that have recourse to cross-cleavage institutions are resilient to rumor mongering precisely be-

cause they can effectively subject misinformation to a diversity of contexts and expose inflammatory falsehoods for what they are (Varshney, 2001). Insular communities, such as those created and reinforced by the internet, fail to foster the institutions necessary to accomplish such a task. Few cases better encapsulate this deficiency than Myanmar vis-a-vis the Rohingya. Constituting a tiny fraction of the country's total population, the Rohingya pose an outsized perceived threat to the ethnic Bamar despite the former's complete lack of financial and political power. Stripped of citizenship, regularly subjected to deadly raids by the military, and driven to flee to nearby Bangladesh, the Rohingya pose essentially no threat in a material sense to the hegemonic rule of the Bamar. Despite this enormous power disparity, Rohingya (and more broadly speaking, Muslims) feature prominently on the Burmese internet (Bergren and Bailard, 2017).

The highly segregated and insular ethnic communities that characterize Myanmar society are reflected and intensified online. While rumors spread in-person concerning a Muslim neighbor may be subject to the corrective of lived experience in heterogenous parts of the country, said rumors have little recourse to a broader context online. The internet in Myanmar is highly segregated with inflammatory voices creating engaging and harmful content at an unprecedented pace and with unprecedented popularity (ICJ, 2019).

Further critical to understanding why the internet is so successful in fostering rumors is the role of repetition. Repetition is a necessary condition for the viral spread of rumors (Allport and Postman, 1947). Again, heterogenous communities successfully militate against the spread of inflammatory rumors because diverse groups of people are unlikely to repeat rumors that are inflammatory or interesting to only a small part of that community. By contrast, once insular communities are infected with emotionally affecting information, such information is not only consumed, but

re-broadcasted by individual members. A rumor is therefore not encountered once and dismissed but repeatedly intrudes itself on the psyche of the internet user.

The internet is unique among modern ICTs for the extent to which it structurally encourages the intensification and consequent perceived blurring of ethnic boundaries. By recreating and reinforcing insular communities online and subjecting those communities to endless, repetitive, and inflammatory information, the medium blurs the perceived boundaries of ethnic identity in a way that few other technologies have the capability to. The internet plays a critical role in the genesis of riots. In creating and intensifying the structures that enable the perception of ambiguity, it lies at the heart of the psychological processes that precipitate ethnic riots.

3.2 The Internet as Broadcast Medium

Beyond its capacity to foster the psychological conditions that spark riots, the internet serves a second purpose: making the performance efficacious by providing an audience. If riots are performative in that they necessitate consumption and reflection, the internet amplifies the potential effect of the performance by pre-packaging and delivering an audience that is nearly guaranteed to find riotous behavior meaningful and compelling. In this way it serves two purposes. First, it minimizes the costs associated with reaching out to a large audience. Second, it gives rioters and consumers a medium through which performance and performer are brought temporally and spatially close. The internet reduces the time delay between a riot, the reaction to that riot, and follow-up behaviors. It also allows ethnic identities to span great geographic distances. A uniquely Hindu nationalist identity in India can be observed in India's western-most region of Gujarat and in one of its most eastern regions, Assam. Nearly 2.5k km lie between these two states and yet, the symbols of Hindu nationalism are essentially the same in both locales. The internet reduces the

distance between Hindu nationalist communities in both places, allowing riots in one area to reverberate with an audience in the other.

First, it's worth considering why the internet is uniquely affecting in its capacity to disseminate riotous behaviors to large crowds. As noted in the previous section, the networks the internet creates are intensified reflections of in-person networks. With regards to ethnic riots, this means that ethnic groups are easily identifiable by potential rioters on the medium. In all likelihood, rioters emerge from these self-same networks (Scacco, 2016). This means identifying potential audiences is relatively easy. Self-segregation makes the identification of potential consumers of violent content simple.

Second, the always-on nature of the internet makes it so that the performance of a riot need not be carried out with an eye towards immediate consumption. Whereas riots would need to be consumed and reacted to in real time outside of the confines of the internet, this requirement is obviated when actions can be recorded and broadcasted at a later time. Unlike the ethnic riots Buckley and Kenney observed who performed at the pleasure of Irish Republican crowds, the internet allows smaller groups of individuals to engage in the same behavior without requiring the immediate feedback of a group (Buckley and Kenney, 1995). The internet guarantees a crowd irrespective of time and place. This loosening of conditions makes the perpetration of ethnic riots outside of the context of already gathered crowds an attractive prospect. The guarantee of an audience allows rioters to engage in behaviors free of the limitations that an in-person audience might impose. Behaviors can be especially gratuitous, target locales that would make large crowds cumbersome, or participate in behaviors at times when it would be unlikely for a crowd to gather.

While prior media have facilitated this dynamic to some extent, the internet is unique for the extent to which it has broadened the scope of the effect. Without

high startup costs or institutional checks on what content gets posted to Facebook or other social media sites, there is little stopping people from posting inflammatory content. While the ‘democratization’ of technology is often considered in the context of positive outcomes such as protest organization or voter turnout campaigns, in the context of a riot, broad access to communicative technologies gives voice to peoples’ most violent and exclusionary urges.

Furthermore, the internet reduces the cost of observing and interacting with the crowd. While temporal separation is helpful in finding an audience for a riot, it is also helpful in gathering reactions to it. Once the aftermath of riotous behaviors are disseminated online, co-ethnics can play their role as audience members, commenting on the content, sharing it with others, or by simply ignoring it. Unlike riots that take place at the behest of in-person crowds, the internet makes it difficult to gauge the extent of tacit disapproval, thereby inflating the perception of public support for such behaviors. In observing in-person crowds, rioters engaging in violence can actively judge what portion of the group either tacitly or actively approves of their actions and adjust accordingly. This is difficult to do online where active approval or disapproval is the only observable metric. Rioters can observe the crowd’s reaction in terms of likes, comments, and shares but are generally not privy to other types of reactions that might signal mild disapproval. No social media site offers a ‘shook my head’ option but such subtle expressions of disapproval may be sufficient to quell the most extreme urges of rioters in an in-person context. In reducing the range of reaction to the overtly negative or positive and skewing the distribution of those reactions to the positive, internet institutions structurally suggest reactions and paint an incomplete picture of the crowd to rioters.

Finally, the internet collapses distance in a manner that dramatically increases potential audiences and transmits meaning beyond its local context. Along with

guaranteeing the presence of a crowd, the internet makes possible the dissemination of meaning-laden riotous behavior to broad geographic contexts. Ethnic identity is increasingly defined by the borders of the nation state and the dominant ethnic group residing therein. As such, ethnic identity and the symbols used to delineate it span broad distances such that riotous behaviors can be readily understood across great distances. The internet allows rioters to find an audience that span such a distance. Behaviors intended to clarify the boundaries of ethnic identity may be undertaken in one locale but find far more receptive audiences in another. Rioters need not be tied to the geographic or demographic particulars of the areas within which they engage in violence.

The internet uniquely facilitates the performative aspect of riots in both, its capacity to broadcast performances and transmit the reactions of an audience back to rioters. Not only does it allow rioters to garner larger audiences than would otherwise be possible through alternative media, but it allows those audiences to span geographic and temporal hurdles. The internet is the ideal medium through which rioters perform violence. It delivers self-segregated and guaranteed crowds, obviates the need for physical and immediate tacit support for violence, imposes few costs on the dissemination of performances, and enables rioters and audiences to interact across great distances.

3.3 Scale-free Networks and the Contagion of Misinformation

While this explanation for the internet's unique effect on the likelihood of riots focuses on the interaction between individuals and the medium, structural characteristics of the internet are also worth consideration. A plethora of research has expanded on the idea of the internet as a 'scale-free' network (Barabasi and Boneabeau, 2003). That is, a network whose connections are not essentially evenly distributed, but dis-

tributed in a clustered manner. While the internet does indeed reflect and intensify human tendencies such as homophily, its organization and structure also facilitate phenomena necessary to the execution of an ethnic riot; namely, the proliferation of a rumor.

This structure differs from other network types in how susceptible it is to the ‘contagion’ of misinformation. The internet is a ‘scale-free’ network which is uniquely susceptible to persistent infection. Whereas contagion in ‘random’ networks is characterized by a threshold below which misinformation dies out and above which it infects the entire system, contagion in scale-free networks can infect ‘clusters’ of nodes that bear striking resemblance to highly segregated ethnic communities.

A scale-free network is a classification that defines the organization and distribution of connections between nodes on a network. As opposed to random-networks in which connections between nodes are essentially homogeneous, connections on scale-free nodes cluster around already densely connected nodes. The distribution of connections on random-networks are roughly Poisson distributed with unusually large or small values relative to the mean being extremely rare. By contrast, the distribution of connections on scale-free networks abides by a power law with the likelihood of observing a node with k connections being roughly $1/k^n$ with $n = 2$ in the case of the internet (Barabasi and Boneabeau, 2003).

First, this distinction maps on to ethnic networks in-person and online insofar as both are heterogeneously organized. Connections between people and nodes on the internet are not even; even in this context meaning they resist clustering. Instead, people tend to organize themselves into finite, densely interconnected sub-networks with central nodes acting as common loci. Second, this distinction provides insight into why in-person social networks make the jump to technological networks so easily. If the connections between individuals in an ethnic mapping of a society are hetero-

geneously distributed, it stands to reason that as adoption of a technology progresses, it will emanate from already central nodes.

More importantly, scale-free networks hold unique characteristics with regards to the contagion of epidemics. In random-networks, disease contagion is characterized by a threshold. If the rate of infection is at or above the threshold, the network will eventually be consumed by the disease. If the rate of infection is below, the disease will die out. By contrast, scale-free networks are far more susceptible to persistent infection though far more resistant to whole-network contagion (Pastor-Satorass and Vespignani, 2001). Diseases in scale-free networks do not proliferate according to threshold mechanics. Instead, they are likely to persistently infect sub-clusters of the network while failing to infect the broader system. Due to the dense connections found within sub-clusters, initial and reinfection of the same nodes is exceedingly likely. The sparsity of connections between sub-clusters, however, makes the proliferation of disease outside of these sub-clusters difficult.

Conceptualizing rumors as diseases helps import our understand of infection in scale-free networks to the domain of ethnically inflammatory material (Zhao *et al.*, 2014). Scholars considering various political behaviors have begun to take such steps. Most notably, Hassanpour argues that ‘globally dense but locally sparse’ networks are uniquely susceptible to misinformation and that such mis-information (purposeful or otherwise) is critical to starting processes of collective action cascades (Hassanpour, 2018). In all but name, Hassanpour references scale-free networks and the characteristics associated with them, showing why the configuration of connections between nodes in a society is important. The difference between scale-free and random networks is also reflective of the civil-society and ethnic riots literature, most famously articulated by Varshney, which contends that cross-cutting institutions militate against the spread of misinformation (Varshney, 2003). Read from a network

perspective, civil society institutions imbue ethnic networks with characteristics of more homogeneously connected random networks. Civil society institutions diffuse the density of connections and thus make infection of sub-clusters less likely.

Literature concerning networks seems to support each of these contentions if not in the same language. Studies suggest that infection in scale-free networks is contingent on the liberality with which information flows between nodes (Meloni and Arenas, 2009). That is, traffic and congestion of information determines the boundaries within which misinformation can spread. Following Hassanpour, flows of information in highly segregated societies are most intense within but not between ethnic clusters. As such, it is unsurprising that the viral spread of misinformation is most often observed in highly segregated communities and not diverse ones. Likewise, to build on Varshney, literature in network studies has suggested that individual vigilance can help to militate against the rapid spread of infection (Yong-Wang *et al.*, 2012). Peaks of disease contagion aren't avoided by individual vigilance but the rate at which such peaks are experienced can be significantly delayed. In the context of ethnic riots, this slowing effect may be critical. The rapid onset of misinformation and the hysteria such spread can bring is often countered by slower, more deliberate processes of cross-cleavage communication. Civil-society institutions that hamper the progress of rumor contagion may buy critical time for these institutions to do their work.

All of this to contend that the internet uniquely reflects the dynamics of scale-free networks among modern Information Communication Technologies. Individuals adopting the technology will likely have been introduced by co-ethnics and will prefer to connect to similar networks thereby intensifying the insularity of sub-networks. In light of a wealth of evidence concerning the viral spread of rumors within communities, we are best served in trying to understand these dynamics if we apply the lens of scale-free networks. Rumors do not either rapidly infect entire societies or rapidly die out

in-person or online.

Instead, rumors persist in small clusters. Villages, towns, and cities but rarely entire countries convulse with mass hysteria. Likewise, it is rarely the case that the broader internet is taken by misinformation. Instead, sub-clusters of the internet are prone to infection. The broader internet isn't susceptible to inflammatory anti-Muslim rhetoric emanating from Buddhist nationalists in Myanmar. Instead, only individuals constituting the dense and insular ethnic networks for whom such information seems existentially threatening seem susceptible to such misinformation. Understanding the internet and ethnic societies in network terms helps us understand why misinformation spreads in the way it does and what role technology plays in facilitating such contagion.

3.4 Disaggregation of Technologies

The central contention made in this project is that the internet is unique among modern ICTs in facilitating the dynamics explored above. If the internet were the only modern ICT recently proliferated, this would be a trivial point to make. Given the extent to which mobile cellular access has also exploded in the last decade globally, it would be tempting to see the arguments made above as relating to said technology as well. However, this would be a mistake. Briefly addressing why should help sketch the scope conditions under which this theory is applicable.

First, the nature of communication on a given medium matters. While the networks cellphones produce are capable of being mapped in terms of scale-free networks insofar as they are reflective of in-person connections, neither technology facilitates simultaneity of communication the way the internet does. At best, these networks simultaneously connect two individuals between whom communication is reciprocal. If riots are to be understood chiefly in their capacity as performances, then technolo-

gies which structurally facilitate the interaction between a performer and the crowd should be different from those that do not.

Anecdotally speaking, a striking feature of the internet in the context of ethnically inflammatory material is the extent to which those reacting to such material feed off one another's excitement and communally build an understanding of the actions being observed. Observers borrow language from one another, respond to each other's comments, and in general engage in crowd-like behavior. Simultaneity of communication allows observers to act meaningfully as the audience, communicating with each other and back to the rioters. These dynamics are simply not possible using communication technologies that cannot structurally and simultaneously organize communication between networks of people (Crosbie, 1998).

Secondly, and building on the first point, is the question of pre-conditions for the emergence of scale-free networks. Random and scale-free networks are distinct with regards to the total number of nodes and the density of connections between those nodes. This distinction is meaningless if applied to networks which 1) contain very few nodes or 2) within which communication between nodes is not reciprocal. The dynamics of contagion explored here are not applicable to networks which contain few nodes between which information does not flow reciprocally.

Again, this marks a significant distinction between the internet and other ICTs, modern or otherwise. Prior technologies and the theoretical explanations for riots that sprung up around them reflect other types of networks with different kinds of limitations. Radio, Television, and Newspapers reach a large audience but are unidirectional in their capacity to relay information. As such, they lend themselves to elite explanations for ethnic conflict. Similarly, cellphones facilitate numerous one-to-one connections within which communication is reciprocal. As such, it is unsurprising that this technology sparked theories of ethnic violence that focus on the individual's

capacity for coordination and strategic action at the granular level. The internet produces dense networks within which communication is simultaneous. The theory presented here attempts to reflect these structural characteristics in its account of ethnic conflict.

3.4.1 *Network Types*

The fundamental difference between cellphones and the internet lies in the density of connections each facilitates. Network theory provides the foundation for making this distinction and helps build a bridge between technological networks and in-person ones. In short, it helps show how connectivity facilitates performative violence. Without such a bridge, it is impossible to understand ICTs as reflective of and integrated into the social fabric and by extension, how ICTs facilitate different kinds of communication. To say that ICTs promote connectivity is to peddle a truism. Network theory allows us to understand how they do so.

As such, the following models should be understood as ideal-types that capture basic configurations of societal and technological connectivity. Basic network types consider the diffusion of information between units (Crosbie, 1998). The physical medium through which this information is transmitted is irrelevant for the purpose of classification. The medium is defined by the network it produces, not vice versa. The key distinction between cell phones and the internet is not that each uses different technical components but that each structurally constrains the flow of information in a distinct manner. These structural constraints influence the feasibility of performative behaviors.

Likewise, societal configurations are characterized by the same patterns of information diffusion. An individual's relation to another, to a crowd, and to broader society vary in the extent to which it facilitates the diffusion of information and to

	Sparse	Dense
Reciprocal	One-to-one Bi-Directional	Many-to-many
Not-Reciprocal	One-to-one Uni-Directional	One-to-many

Table 3.1: Network Typology

what extent this diffusion is reciprocal.

In modelling basic network types, it is helpful to think of the individual as a node with connections between nodes representing channels of communication. While more complex models of network connectivity may include other information such as the strength of ties between nodes, this basic setup suffices for our purposes.

Two factors constitute the primary dimensions along which basic network types vary (Crosbie, 1998). These are the density of connections and reciprocity between nodes. Sparse networks are those which concern a limited number of nodes. In the types explored, these are represented as the relationship between two nodes. By contrast, dense networks are those characterized by numerous nodes between which the flow of information can follow multiple paths. Dense networks are not reducible to collections of sparse networks; they represent an increase in complexity in the degree to which information travels within nodes. Another dimension along which networks vary is reciprocity. Can nodes within networks communicate with one another or are certain nodes designated as ‘listeners’ and others ‘speakers’? Reciprocal networks are those within which information can travel in any direction between nodes. By contrast, non-reciprocal networks are those within which directionality matters.

The most basic classification of networks is the uni-directional one-to-one type which concerns only two nodes, between which information can flow in only one direction. One node is designated as the speaker which is capable of transmitting

One-to-One Uni-directional

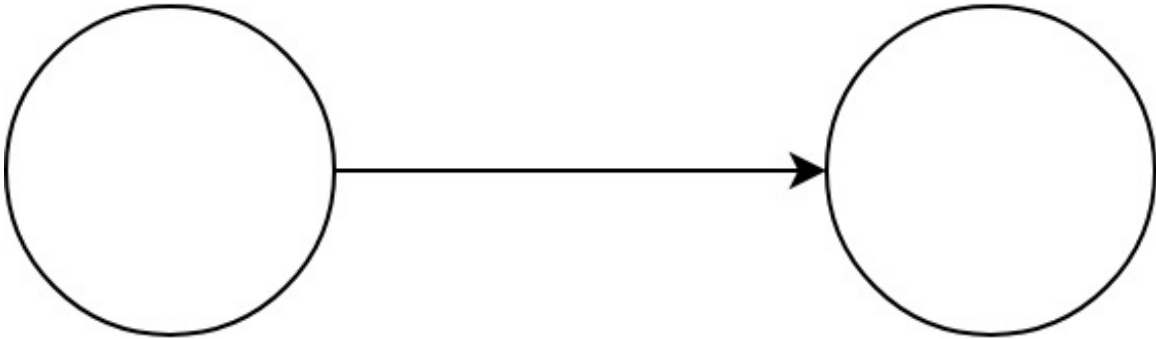


Figure 3.1: One-to-one Unidirectional Network

information while the other is designated the listener which is capable of receiving information. This network type is sparse and non-reciprocal. From a societal perspective, these types of networks are relatively rare. Reciprocity characterizes most of the interactions people have with one another. Nevertheless, examples of such networks do exist, often in highly structured bureaucracies. Insurgent cells receiving sensitive information from their superiors may form such a network. Pagers are a good example of a technology that facilitates such networks. Calls made to pagers transmit information uni-directionally. (All three remaining) Pager owners cannot in turn relay information back to the original speaker; at least not via pager.

The next type of network is the bi-directional one-to-one type where reciprocal communication exists between two individual nodes. This network type is also sparse but is reciprocal. This basic connection type is helpful for conceptualizing individual level relationships. In this model we see a stylized visualization of the numerous mundane interactions that occur between individuals in a society; the relationship between coworkers, spouses, and a child to a parent. Information passes *between* nodes on the network. Similarly, this network configuration captures the dynamics

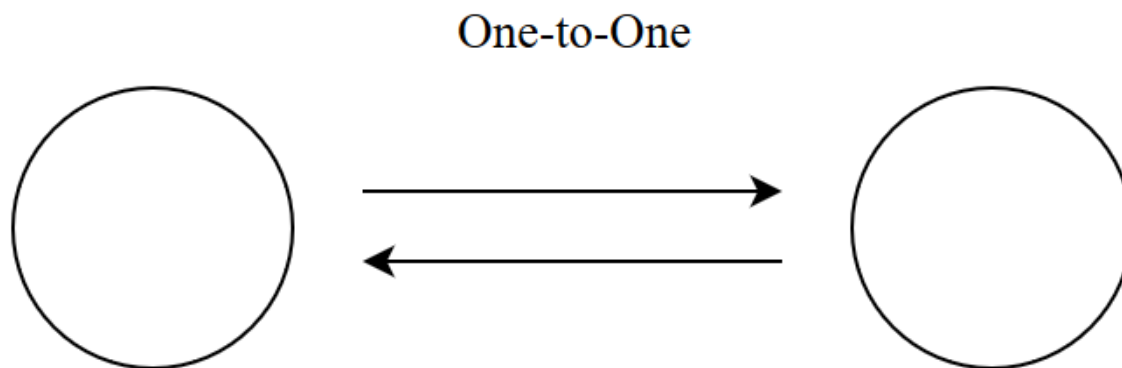


Figure 3.2: One-to-one Bidirectional Network

of otherwise quotidian communication technologies; text messaging and phone calls serve as good examples. While the reach of such communication is limited, the flow of information between individuals is reciprocal; a conversation between co-equals that allows for the mutual exchange of information.

A third network type considers asymmetric communication. One-to-many networks constitute communication between an individual ‘speaker’ node and numerous ‘listener’ nodes. This network type is dense but non-reciprocal. The single ‘speaker’ possesses the sole capability to transmit messages whereas listeners possess only the capacity to listen. While one-to-many networks constitute a significant increase in the degree of network complexity over one-to-one networks insofar as they contain multiple connections and dense connections between specific nodes, this complexity comes at the cost of reciprocal communication.

This jump in network complexity moves us closer to modelling a fully realized ethnic community without quite capturing the density of interactions that occurs within such a society. Here we see the model of communication most often evoked by electoral explanations for riots where conflict-minded politicians disseminate inflammatory information to eager listeners who, in turn, have little recourse to communicate back to the politician (Wilkinson, 1984). A key feature of this network paradigm is the lack of connections between listeners. This model captures the dynamics informing

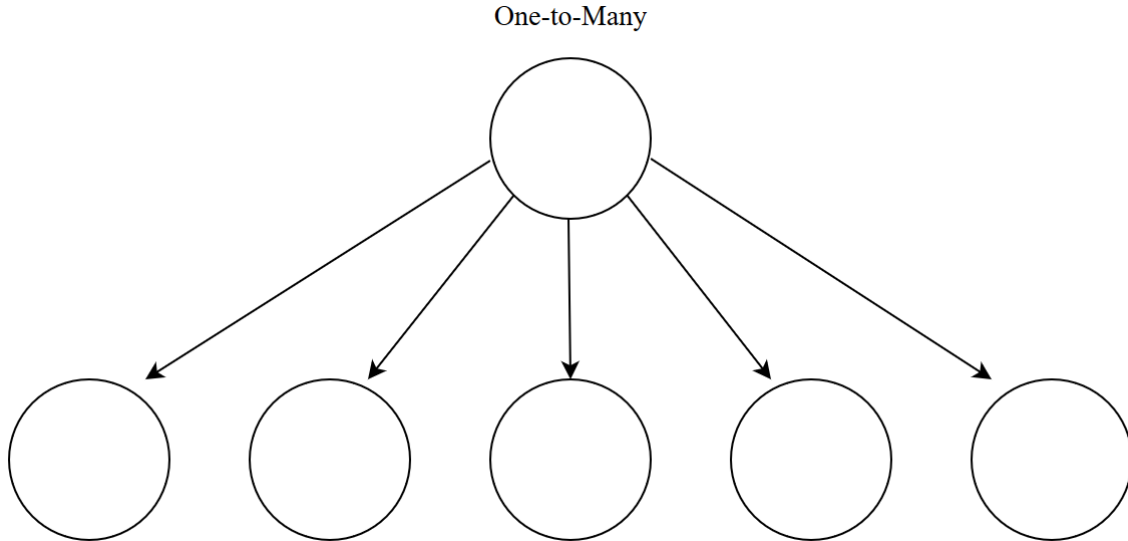


Figure 3.3: One-to-many Network

elite to non-elite communication and the technologies that facilitate it. From a social perspective this network paradigm is exemplified by ethnic leaders and/or politicians communicating with their constituents.

Likewise, this model captures communication technologies that have been theorized as ‘mass’ communication technologies such as newspapers, radio, and television broadcast. These technologies differ from one-to-one methods in that they allow for the connection of a vast number of nodes to a single, centralized node. These technologies are characterized by high costs for the speaker and, as a consequence, limited options for listeners. The costs of maintaining a radio station, newspaper, or television broadcast are sufficiently restrictive such that only the state and a scant handful of other major actors are capable mustering the resources necessary to leverage these tools. One-to-many communication networks such as those listed above have been the focus of much research in political science (Paluck, 2009; Maja *et al.*, 2015).

Finally, many-to-many networks constitute communication among numerous individuals. This network type is dense and reciprocal. Marrying characteristics of both, one-to-one and one-to-many networks, many-to-many networks are characterized by

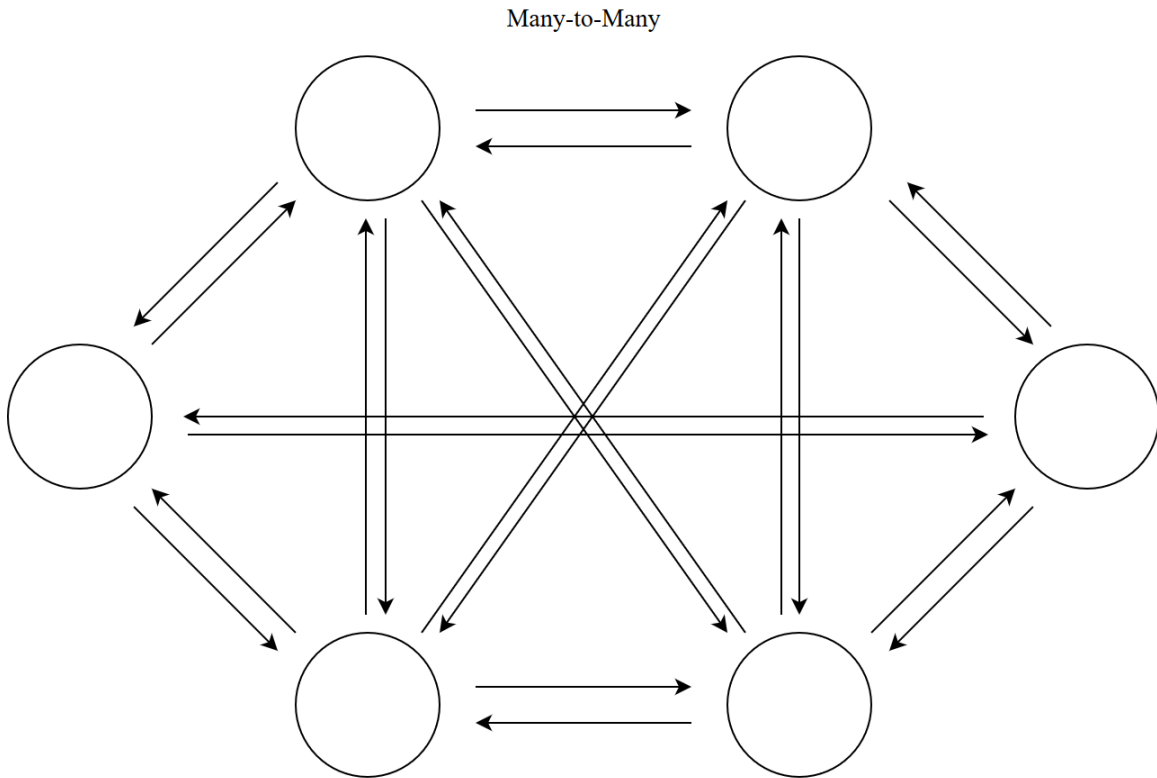


Figure 3.4: Many-to-many Network

the highest degree of complexity of network types. They facilitate the rapid dissemination of information and possess densely interconnected nodes that are capable of communicating among one another reciprocally.

This basic network type is the paradigm closest to modelling a robust, interconnected society in which members communicate among each other. Notable among basic network paradigms for the density of its connections, the many-to-many paradigm accurately captures the interconnected nature of much interaction in the world. Insofar as ethnic networks are concerned, the many-to-many network paradigm accurately models the extent to which social interactions occur. Rather than modelling a very particular kind of social interaction - as is the case with the one-to-many paradigm - this network configuration helps us make sense of the general social structure of a given society.

This network type is realized in communication technologies, specifically the internet. Whereas prior technologies were notable for their capacity to broadcast information to a broad number of individuals, the internet is notable for the extent to which it maps on to the dense connections that characterize in-person networks and facilitate inter-user communication. More important than the single actor on these platforms is the power of multiple actors, each connected to one another, relaying information reciprocally at lightning speed.

3.4.2 Cellphones vs the Internet, Networks and Thresholds

The ideal-types of network connectivity explored in the preceding section distinguish the fundamental difference between cellular technology and the internet. Cellphones facilitate bi-directional one-to-one networks while the internet facilitates many-to-many networks. While both types are reciprocal, the former is sparse while the latter is dense. Sparse connections do not create an audience while dense ones do. Three factors characterize this distinction. First, simultaneity. Many-to-many networks make multiple, concurrent communication possible while one-to-one networks do not. Second, each network has different necessary conditions for expression. One-to-one networks have notably less stringent conditions than many-to-many networks do. Finally, density of connections concerns mainly the number of pathways information can take. As such, many-to-many networks are not merely aggregations of numerous one-to-one networks but are distinct configurations of nodes irreducible to a simpler form.

One contention that might spring up in reaction to this classification of ICTs is that, contrary to extant theorization, cellphones are in effect a many-to-many technology. After all, even the most basic cellphone allows users to text and call multiple people. What makes those interactions any different from the connections one makes

on the internet? What this account misses is simultaneity of communication. Many-to-many networks are distinct because they allow for the spread of information to and from multiple nodes at the same time. What sets the internet apart from other technologies is not only that it allows an individual to broadcast to a crowd, but that the crowd can in turn communicate within itself and back to the original speaker. The reaction of a crowd to a performance of ethnic violence is not the sum of each individual's reaction; it is a whole greater than its parts. The individual is at once the speaker and listener in multiple configurations and can act in those roles at the same time. Cellphones cannot facilitate these kinds of networks because at best, they simultaneously connect two individuals to each other. Even when information is diffused at a mass scale via cellphones, these communications are not simultaneous *and* bi-directional. Receivers of such communications do not exhibit crowd dynamics because they cannot communicate among each other. Such a dynamic is necessary to render a performance legible.

On this account, the extant literature is essentially correct. Cellphones are primarily used to connect two individuals, not masses of people. Anyone who has attempted a conference call with more than 3 people understands the anarchic quality of such efforts. To make such communication possible via cellphones, the technology is either used as a medium for one-way communication (i.e. one-to-many) or strict rules are implemented to ration who can speak and when. The group is never expressing its ability to reciprocally and simultaneously communicate within itself when using this technology.

Simultaneity of communication in a dense network makes crowd dynamics possible. Building a sense of identity, spreading disinformation, and rallying co-ethnics relies not only on the ability of individuals to broadcast information, but for that information to be consumed, reacted to, and repeated publicly and repeatedly (Allport

and Postman, 1947; Paluck, 2009). These dynamics are impossible with one-to-one networks. Simultaneity of communication is critical to ensuring that can happen.

Next, the conditions necessary for each network to express itself are different. One-to-One networks require at the very least two people, one of whom can send information and one of whom can receive it. Once these conditions are met, one-to-one networks assert themselves. By contrast, the necessary conditions for many-to-many networks are more stringent. Not only is the requirement for the number of nodes higher - three at the very least, in practice more - but each node must be connected to multiple others reciprocally. One-to-one networks do not immediately morph into many-to-many networks once a certain level of participation is reached. So long as a technology continues to facilitate *only* bi-directional communication between individuals, it will only produce one-to-one networks. By contrast, a many-to-many network cannot exist in an environment with few nodes.

This distinction helps us understand why cellphones and the internet are structurally distinct and why considering them as overlapping technologies is insufficient to studying their effect on ethnic conflict. Cellphones have been correctly labelled a one-to-one technology because scholars recognize how the ICT is used in practice and how it constrains the flow of information. Cellphones play essentially the same role when given to two people, as when given to two thousand. Information passes between two individuals. As such, it has been relatively simple to discern the effect of this technology even at low levels of penetration. By contrast, the internet has proved more resistant to analysis. If the internet does produce many-to-many networks, then it does so only after a certain degree of internet penetration is achieved. In the following section, I explore this difference and show how this implication leads to varying expectations and hypotheses regarding ICT proliferation and its effects on spontaneous ethnic conflict.

3.4.3 *The Internet and Thresholds*

The low requirements for the efficacious use of cellphones explains why the effect of the technology on organized forms of conflict can be detected even at low rates of penetration. Conversely, we should expect the internet to exhibit an effect on spontaneous forms of ethnic conflict *only after* a given threshold of penetration is achieved. Cellphones produce bi-directional one-to-one networks which express themselves across levels of penetration while the internet produces many-to-many networks which require some minimum number of nodes and a density of connections between those nodes.

Diffusion models of technological adoption have consistently shown that a tiny fraction of ‘innovators’ initially take up new technologies with ‘early-adopters’ following and the ‘early-majority’ adopting soon after (Rogers, 2003). For cellphones, in the context of organized ethnic conflict, this isn’t an issue. The key contribution of the ICT is to reduce the cost of individual-to-individual communication. This benefit can be realized without a dense network of participating nodes. So long as the person you want to connect with also has a cellphone, the one-to-one network can assert itself and the benefits of using a cellphone are realized.

This is not the case when considering the internet in the context of spontaneous ethnic conflict. Many-to-many networks necessitate dense and reciprocal connections between nodes to realize performative benefits. Without these networks, the process of consuming, reacting to, and echoing information is done at the individual level. Without a large number of connections, an individual using a scantily penetrated internet isn’t interacting with a crowd, but merely using a new technology for ‘old’ purposes. Without network density, there is no crowd to speak to, interact with, and gain feedback from. For this large number of connections to occur, the individual

Diffusion of Innovation Curve

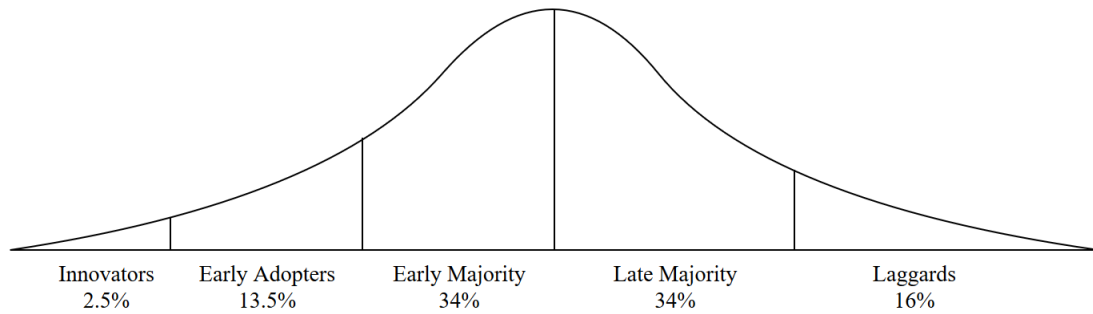


Figure 3.5: Diffusion of Innovation Curve

must be capable of pulling from a large enough pool of possible connections to create a dense, communal network. Until this is possible, communication on the platform is characterized by one-to-one networks. While use of the technology may certainly be involved - an email, text, or twitter message to another person - nothing about these interactions is fundamentally different from one-to-one communications from a network perspective.

To illustrate this point, consider the graphics given below. In it, individuals are represented by a circle and connections between individuals are represented by lines. Circles drawn with a solid line represents members of a community who have adopted the ICT while dashed lines represent those members who have not. Likewise, solid lines denote connections on the ICT while dashed lines represent connections outside of it. For the sake of simplicity and given what we know about the tendency of real life networks to replicate themselves online (Bisgin *et al.*, 2012; McPherson *et al.*, 2015), it is assumed that community members connect on the new platform if they were previously connected in person. Emulating a contagion model, proliferation of the ICT radiates outwards from the ‘innovator’ nodes. Note that the networks of connection on the platform during the initial periods of proliferation do not resemble many-to-many networks - information cannot travel multiple paths between nodes.

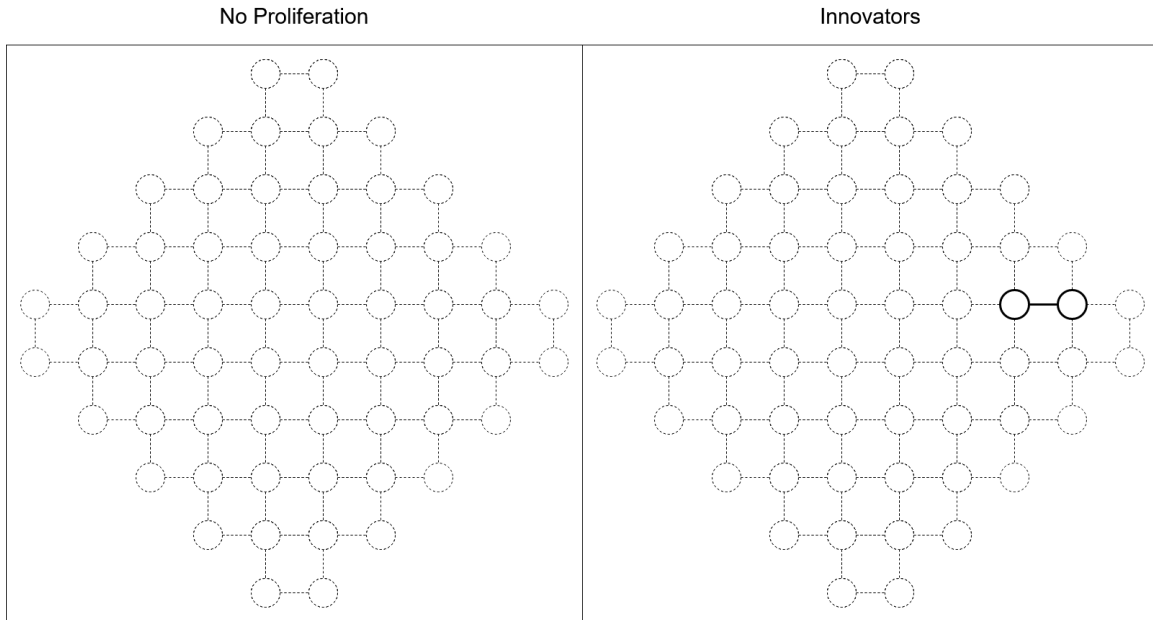


Figure 3.6: Early Proliferation of Technology

Rather, the ICT's networks of communication remain isolated, creating sparse networks rather than dense ones. On the contrary, once the ICT has proliferated widely among the community, dense networks that reflect in-person connections assert themselves.

To elaborate, consider network configurations from various perspectives during the 'Innovators' and 'Early Adopters' phases as compared to the 'Early Majority' phase. Initial adoption of the ICT in question among a limited number of individuals creates one-to-one networks. Connections are reciprocal but not dense. Similarly, network configurations may vary based on perspective in the 'Early Adopters' phase but these networks can certainly not be classified as many-to-many. From the perspective of central nodes, these networks resemble one-to-many networks where peripheral nodes are connected to a central node but not necessarily each other. From the perspective of peripheral nodes, one-to-one networks are asserting themselves. Once the early majority phase is achieved, connections on the ICT are dense enough to be

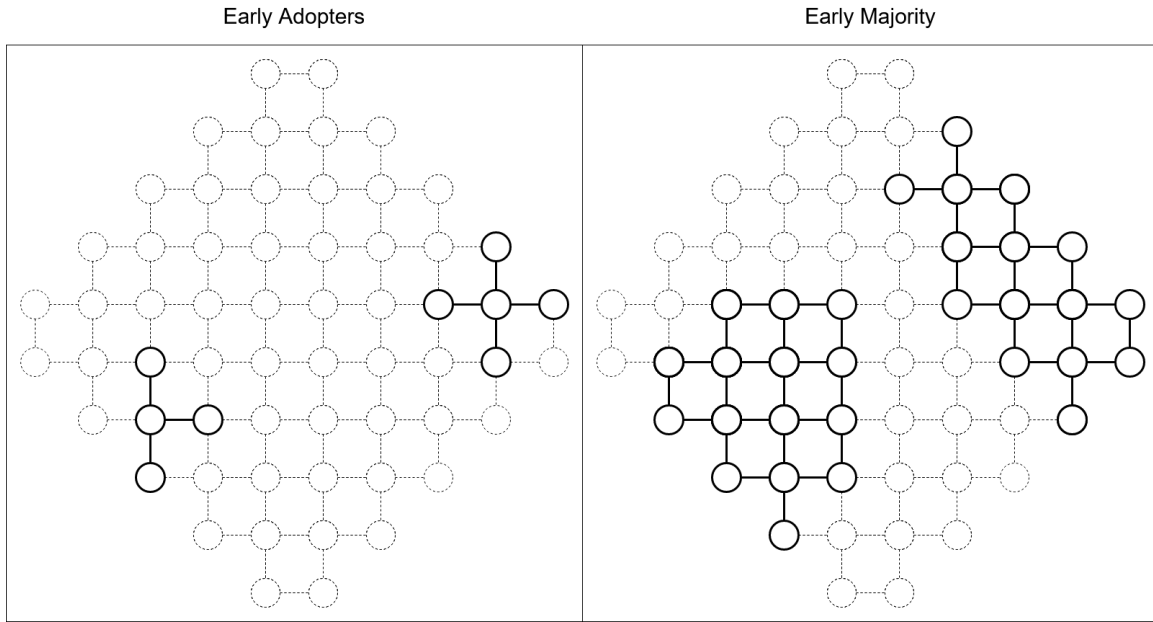


Figure 3.7: Advanced Proliferation of Technology

meaningfully called many-to-many. Information can travel multiple paths between participants.

This observation constitutes the fundamental reason why we ought to expect different effects from each technology and why such a distinction becomes more important as the internet becomes more widely proliferated around the world. The effect of cellphones is relatively easy to measure because the networks they produce can assert themselves irrespective of scale. By contrast, the internet and the networks it produces are sensitive to changes in scale. With internet penetration increasing, we should expect its effect to change as well.

This also suggests why theorization about the internet prior to a meaningful level of proliferation is difficult and has been largely avoided by scholars. At low levels of penetration, the networks produced by the internet vary. As noted, networks created during the ‘Early Adopters’ phase may be one-to-one or one-to-many depending on the perspective taken. While the former has been theorized to facilitate ethnic con-

flict, the latter has been theorized to pacify it (Warren, 2015; Shapiro and Weidmann, 2015). Which of these effects is stronger in a given case is likely to hinge on other contextual factors. Further, given this network instability, it's doubtful that a meaningful or consistent 'average' effect of the internet can be observed via quantitative analysis at low levels of proliferation.

To expand on this point, consider what role the internet plays when adopted at low levels. What comparative advantage does it have in facilitating one-to-one networks where cellphones are widely proliferated? It isn't notably faster than using cellphones and where the internet isn't widely used, the odds of being able to connect with any given person are fairly low. However, once the internet is widely proliferated, no other technology is capable of producing the types of networks it does. There is no other ICT that offers the same interaction with a crowd that the internet does.

3.5 Conclusion

In this chapter I've argued that the internet is unique among modern ICTs in its capacity to promote spontaneous ethnic conflict. To do so I've contended that the internet structurally facilitates connections that enable the rapid dissemination of rumors and misinformation which in turn increased perceived ambiguity among already insular and homogeneous communities. I've drawn on network theory and diffusion models of technology to support this contention.

In the following chapters I present empirical evidence for the ideas built in this chapter. First, I show that the disaggregation of the modern cohort of ICTs has observable implications for our models of communication technologies and conflict. The internet and cellphones have different effects on the likelihood of ethnic conflict. Each uniquely constrains the flow of information within its network, a dynamic that can be empirically observed in cross-national, quantitative analysis. Next, I sketch

the limits of this theory by observing a deviant case. I examine the case of India and its public internet infrastructure project, Bharatnet. I show that the proliferation of Bharatnet Wi-Fi is associated with a lowered likelihood of riot outbreaks. I argue that the contextualization of the internet as a tool that fosters cross-cleavage ties instead of one that reifies existing ethnic boundaries explains this phenomenon.

In sum, the following chapters should sketch a nuanced picture of the internet's role in spontaneous ethnic conflict and the limitations of said role. These chapters move beyond the extant literature in important ways. First, they consider the disaggregation of technology in a way that has been underdeveloped thus far. Second, they observe the proliferation and influence of the internet in a specific place. Finally, they provide a framework for a theoretically robust understanding of communication technologies. While the existing literature has made strides in the latter, the near exclusive focus on cellular technology and the utilization of the collective action paradigm limit further theory building in increasingly noticeable ways. The following chapters address these weaknesses.

Chapter 4

CROSS-NATIONAL ANALYSIS

In this chapter I present evidence that the internet and cellphones have different effects on the likelihood of ethnic riots and that these are reflective of the networks of information each structurally facilitates. While the previous chapter explored why such a distinction is important for theoretical reasons, in this chapter I emphasize why such a distinction is important to make for empirical reasons. Next, I show that these effects can be observed and differentiated via cross-national quantitative analysis. I further show that the internet has a non-monotonic relationship with the likelihood of ethnic conflict; we do not observe an effect until a threshold of penetration is achieved. I present the results of a cross-national time-series analysis of the effect of internet proliferation on the likelihood of spontaneous forms of ethnic conflict. I show that the effect of the two technologies is independent of the other.

The goal of this chapter is to provide empirical evidence for the disaggregation of modern ICTs. While much of the extant literature has dismissed this task, this chapter pushes back against this assumption. This is a worthwhile distinction to make as doing so captures the observed shifting dynamics of ICT use. Cellphones are not used in the same manner in 2019 as they were in the early 2000's. To be willfully ignorant of this change is to purposefully blind ourselves to the mechanisms underlying any relationship between technology and conflict. Grappling with this reality can help to make studies of media and conflict more conscious of the media side of that relationship.

4.1 The Problem: Empirical Observations

Twenty years ago in 2000, there were fewer than 7.4 million mobile cellular subscriptions worldwide. As of 2018, there were nearly 7.6 billion (ITU, 2020) - an increase of an order of magnitude. In the span of a generation, cellphones have taken over the world and in doing so, have radically changed the way we communicate. Cellphones bridge distance in a manner that has no precedent. More importantly, cellphones are cheap, widely proliferated, and make communication between individuals radically easier than it would be otherwise. Cellphones effect voting (Coll, 2005), protest (Berger, 2017), identity formation (Graham and Choi, 2016), and ethnic conflict (Pierskall and Hollenbach, 2013) in complex ways that are well catalogued.

But cellular technology isn't the only technology that has radically changed the media and political landscape in the last two decades. With 2 Billion users in 2010 and over 4 Billion users in 2020, the internet has penetrated rural areas with unmatched rapidity and thoroughness (ITU, 2020). While some of this growth can be attributed to the extensive infrastructure built in pursuit of global cellular connectivity, much of it cannot. Internet connectivity has not necessarily built on a prior cellular infrastructure, especially not in the developing world. Cellphones, in many contexts, appear as a means to access the internet, not as a technology compelling in its own right. It's telling that the 'smartphone' and not the 'cellphone' is widely noted to have changed the world (Agrawal, 2018). The former implies internet connectivity, the latter does not. As with cellphones, scholars have similarly probed the internet's effect on many of the same political outcomes.

But few scholars have considered the area in which these two technologies diverge. Indeed, considering cellphones in the modern context assumes internet usage in a way that it did not in the early to mid-2000's. For both empirical reasons, the distinction

is important to make.

There are good reasons to believe that the internet has supplanted cellphones as the primary technology of interest with regards to organizing collective action. The centrality of social media and other internet enabled forums to recent mass protest events suggests this point. The Arab spring revolts were largely organized via Facebook and to a lesser extent, Twitter. Protesters in Tunisia (Lowrance, 2016) and Egypt (Lim, 2012; Bebawi and Bossio, 2014) have used Facebook pages to mobilize huge swathes of the young, urban population as have protests across Southeast Asia including anti-corruption protests in Indonesia (Lim, 2013). Importantly, this mobilization happened primarily via the internet, not cellphones.

Likewise, studies of communal acts of violence and the intense identity forming rhetoric that precedes it regularly make note of the inflammatory role social media plays in the process. Myanmar and South Sudan stand out as notably bloody examples in which Facebook was cited by numerous authorities to have played an outsized role in proliferating rumors (noa, 2018; Peacetechnology, 2018). Not only does social media seemingly facilitate the viral spread of rumors, but after the fact, helps instigators spread news of their actions to like-minded co-ethnics (Stecklow, 2018). Here too the internet - distinct from cellphones - stands out for its prominent role in the process. Rioters seem to be leaning on the internet to build a communal sense of identity, excite a sense of siege, target out-group members, and broadcast the aftermath of riotous behavior.

The question these observations beg is ‘why do reporters and participants keep mentioning the internet instead of cellphones?’ The most parsimonious answer is that they’re not the same. Not only are the patterns of diffusion distinct for each of the technologies, but the assumption that they necessarily overlap can be misleading. To the first point, a significant gap in the proliferation of cellphones and the internet is

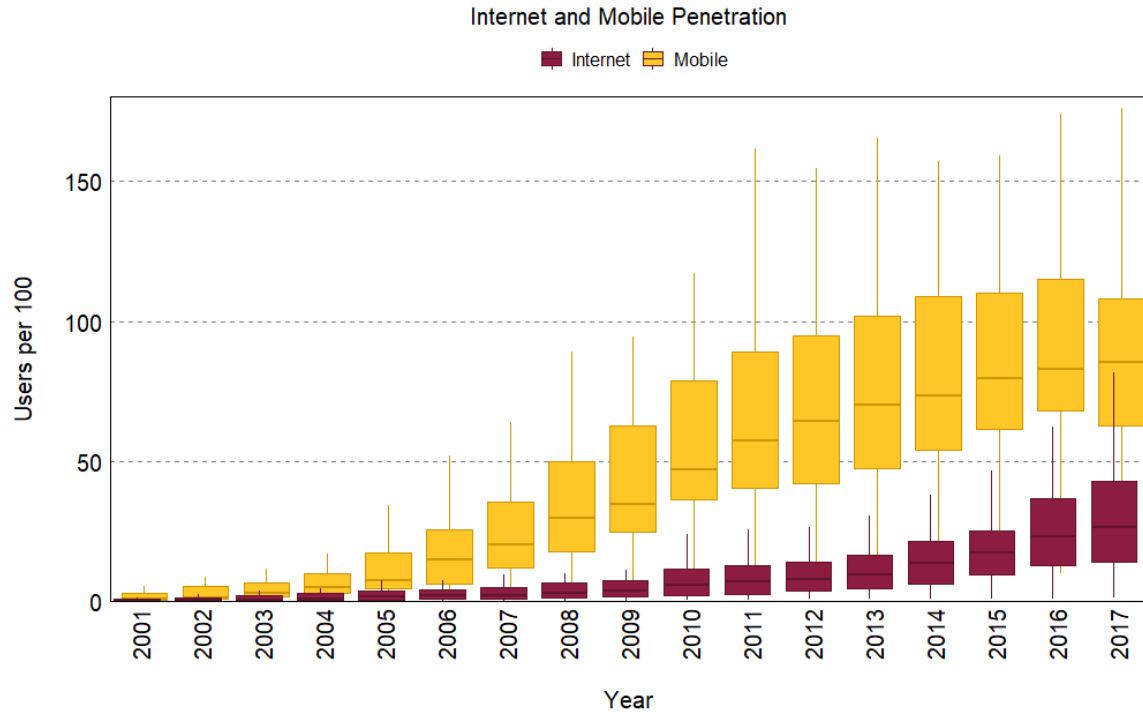


Figure 4.1: Internet and Mobile Penetration

readily observable. Whereas proliferation of mobile cellular subscriptions took hold in 2007-2008, internet penetration has lagged by about 5-6 years.

Moreover, while growth in cellular subscriptions has largely levelled off, the growth of the internet seems not to have reached an upper limit. These observations suggest that one technology is not necessarily a complement or replacement for the other. Were the former true, we might expect cellular subscriptions to rise alongside the rise in internet penetration. Were the latter true, we might expect cellular subscriptions to decline with the rise in internet penetration. Neither appears to be the case. Instead, we see distinct patterns of penetration that suggests two independent technologies growing at their own pace; a fact reflected in usage patterns.

Evidence from developing countries supports this contention. Whereas access to the internet followed a lengthy period of cellular proliferation in developed countries, the same cannot be said of internet access in other parts of the world. Cellphones and

the internet are not as tightly related in Myanmar and India, for example, as they are in the United States (James, 2019; Joshi, 2015). The temporal pattern does not hold globally. Indeed, these cases in particular suggest that the step-wise introduction of ‘successive’ technologies is unlikely to be common of technological proliferation going forward. The developing world will probably not first be introduced to non-internet enabled cellphones, then dial-up, then DSL and finally Fiber-optic internet connections. Instead, developing countries worldwide have altogether skipped these first few steps. Internet-enabled smartphones are the first technology tied to modern ICTs that most people are being exposed to.

A final answer to the question ‘why do people keep mentioning the internet instead of cellphones?’ considers actual use of these technologies. Scholars, journalists, and users themselves mention the internet because it is the resource they perceive themselves as using. While taken for granted in much of the developed world, using cellphones and the internet requires a degree of literacy - both tech and standard. Illiteracy is a serious mediating factor when considering ICT use (Kala, 2018).

Why do people perceive themselves as using the internet instead of cellphones? Because often, that’s exactly what’s happening. Facebook is largely driven by pictorial content and Google is wholly accessible through voice-commands. For the technologically uninitiated and functionally illiterate, these are invaluable tools that are simply not widespread on other technological platforms. Basic cellphones are not user-friendly in the same way the internet is. These empirical observations heavily imply that the aggregation of modern ICTs is unwarranted and a hindrance to robust theorization.

4.2 Hypotheses

Prior theorization produces hypotheses concerning the effect of the internet on the likelihood of spontaneous ethnic conflict. In this section, I'll briefly state these hypotheses, summarizing the reasoning that produced them.

First, we ought to expect different ICTs to affect the likelihood of spontaneous collective action independently.

H1: Internet penetration should have a statistically significant and positive relationship with the likelihood of spontaneous ethnic conflict independent of cellular penetration

The simplest claim made in the preceding theorization concerns the independent effect of internet penetration on the likelihood of spontaneous ethnic conflict. Extant theorization on this topic has not made this distinction. Instead, scholars have rolled the internet into cellular penetration, assuming that one implies the other or that the technologies are so intertwined as to make disaggregation unfeasible. If we fail to reject this hypothesis, we should expect to see terms for internet penetration return as significant. If prior theorization is correct, our term for cellular penetration should completely absorb this effect.

Second, we can consider the specific dynamics of the internet.

H2: Internet penetration will increase the likelihood of spontaneous ethnic conflict after reaching a threshold of penetration

The internet's comparative advantage lies in its capacity to produce many-to-many networks. Unlike one-to-one networks, these networks *are* sensitive to variations in scale and require that a certain number of nodes be active and densely interconnected. Prior to these conditions, the internet can produce only one-to-one or one-to-many

networks; neither of which facilitates the identity forming dynamics theorized about in the preceding chapter. As such, internet penetration prior to a threshold will have uncertain effects if any at all. Once a threshold is reached, however, these networks of communication should assert themselves and the internet should be observed to have a positive effect on the likelihood of spontaneous ethnic conflict.

These hypotheses form the foundation of the claims made in this dissertation. They drive home two main contentions. First, these technologies are distinct in their effect on spontaneous ethnic conflict. Second, they are distinct because they facilitate the flow of information in different ways and that this distinction is observable in how they influence our outcome of interest. In the next section, I use a cross-national, time series dataset to test these hypotheses. In it, I consider possible conditioning variables. Following this, I devote attention to the measurement of my technological penetration variables and build parsimonious and interpretable models that explore the relationship between my variables of interest.

subsection Conditioning Factors

The internet should have a positive influence on the likelihood of ethnic riots but numerous variables condition this relationship. Variables which influence both, the propensity for technological adoption and the likelihood of ethnic conflict are a source of potential confounding and ought to be accounted for. Among these variables is the prevalence of poverty, rule of law, rurality, and extent of prior economic development. While these variables have all been explored in depth in the context of ethnic conflict, they are worth exploring for their influence on the degree of ICT penetration specifically. Since I argue that the degree of penetration is the major predictor of the internet's influence on spontaneous ethnic conflict, noting how each addresses this specific dynamic should help to illuminate this theory. In this section, I consider variables that are most likely to confound the relationship between the internet and

spontaneous ethnic conflict and explore the logic behind why they might do so.

Various ‘access’ variables play an immediate role in determining the extent of internet penetration while also predicting the likelihood of spontaneous ethnic conflict. This group of variables - contrasted with ‘environment’ variables that I’ll explore later - play a first order role in the individual level calculation of whether to use the ICT. While some of these variables have been explored in the extant literature, others have not. Whereas these variables may only be of peripheral importance in studies of spontaneous ethnic conflict with other focuses, here they take center stage.

Poverty is the most immediately observable ‘access’ confounder between internet penetration and the likelihood of spontaneous ethnic conflict (Scacco, 2016; McCarthy and Zald, 1977). Where poverty is prevalent, individuals are unlikely to allocate scarce resources to accessing the internet. Given that a network must possess a certain number of participants before a many-to-many network emerges, relative price plays a role in determining the number of adopters (Tan and Teo, 2009). Where prices for internet access are high relative to income, fewer individuals will use the ICT. This relationship should be particularly pronounced in poorer states where the decision to spend scarce resources on what amounts to a luxury constitutes a financially salient decision for many individuals and families. Conversely, where individuals possess a higher degree of discretionary income, this relationship should be muted. Price of internet access constitutes the most important ‘access’ variable upon which the relationship between internet penetration and spontaneous ethnic conflict rests.

Likewise, actual uptime of the internet matters for promoting proliferation. While a given area may nominally be covered by the requisite technology, actual access to the internet can vary depending on how often internet outages occur. Internet outages have become frequent in much of the developing world (sflc, 2020). In part, this stems from an under-developed telecommunications infrastructure; an unreliable

cellular signal is often the result of a spotty electrical grid or poorly implemented cellular technology. These outages deter individuals from taking the leap and joining the ICT. Like price, the frequency of outages conditions the benefits an individual may reap from using the internet as a medium for many-to-many communication.

Further, state mandated internet outages have become an increasingly common experience in parts of the world. India alone, as of November 30th, 2018, has experienced 128 state mandated shutdowns (sflc, 2020) nearly all of which have been implemented in response to or anticipation of unrest. The recent total shutdown of communication technologies in Kashmir for nearly three full weeks serves as a striking example of such an effort (Goel *et al.*, 2019). These shutdowns force internet users to find alternative ICTs to communicate through; ICTs which do not necessarily produce the same types of networks. While the frequency of India's coerced shutdowns undoubtedly makes it an outlier, the self-conscious effort by the state to pre-empt ethnic conflict by selectively restricting access to the internet suggests that we ought to take the role of internet uptime as a confounder seriously (Rydzak, 2018).

Beyond these variables are a slew of 'environment' variables which indirectly influence proliferation of the internet in a given state. These include rule of law, rurality, and the extent of prior economic/technological development. While important, these variables do not factor into the individual level rational calculations that drive people to adopt a given technology. Instead, they provide context for these decisions, informing the environment within which such decisions are made. Often, these variables play a role in the calculations corporations and states make when deciding when and where to undertake a proliferation project in the first place. Rule of law, rurality and extent of prior development are variables which influence the profitability of such ventures at the corporate level. These are variables which, in addition to conditioning the likelihood of spontaneous ethnic conflict independently, also condition the

likelihood of technological development.

First among these variables is the rule of law (Touchton, 2013). Development of a cellular infrastructure is an expensive undertaking. Even relying on relatively cheap cell towers involves securing land rights, procuring rare metals, connecting to a reliable energy source, and enforcing a plethora of contracts to achieve the above. Without strong rule of law, these endeavors become difficult if not impossible. In states with uniquely weak institutions supporting the rule of law, basic security of property rights can be absent to such an extent that the theft of infrastructure becomes a salient issue for telecommunications companies. These risks reduce the likelihood of telecoms investing heavily in the development of an internet infrastructure and as such, have a knock-on effect on internet penetration.

Likewise, violent forms of collective action are negatively correlated with the rule of law (Bailard, 2015). When individuals know they can act with impunity, they often do, resorting to violence to resolve interpersonal conflict. Riots are no exception. Numerous cases have noted that riots happen when security forces either actively abet rioters or tacitly approve of their actions (Horowitz, 2001). Without the state's vigorous involvement in mitigating and preventing such actions, little stands in the way of a group of armed and angry individuals and their target. Rule of law is fundamental to the security of a society, even from itself.

Rurality also plays a large role in determining the likelihood of technological proliferation. As noted, building an internet infrastructure is expensive; an expense mitigated by focusing on densely populated areas. Cities and near-suburbs offer high potential for turning a profit; populations are dense enough that the cost of the investment in such an infrastructure is likely to open up a significant market. By contrast, building any infrastructure in rural areas is resource intensive. Populations are scarce, scattered, and often lack exposure to prior technologies that might make

them more likely customers. Moreover, by definition, rural areas are far from the center of society, both geographically and in terms of social connections. The former further increases the cost of building physical infrastructure. Laying wires, fiber, or building towers at a distance from the rest of your infrastructure adds material and other costs. The latter obviates the need for connective technologies in the first place. Rural areas are often isolated but have dense intra-societal networks. As opposed to the anonymity of city-life, village life is often characterized by relative proximity and familiarity with one's social contacts. The value added of the internet as a connective technology is more difficult to prove in such an environment.

Rurality has also been widely noted to pacify ethnic conflict (Bailard, 2015; Pier-skall and Hollenbach, 2013). Distance and geographic isolation make planning collective action events difficult. The ability to muster resources and plan inter-societal events is diminished by the weakness of ties across villages and the difficulty of communicating at long distances. Studies of cellular influence on the likelihood of organized conflict have noted that these effects seem to be stronger in rural areas where the introduction of a cellphone can make tactical planning more feasible. It's also worth noting that rural areas tend to be deprived relative to urban ones. Economic development and opportunities tend to be concentrated in areas with a wealth of human capital and adequate infrastructure. Villages tend not to be abundant in either. As a result, rural inhabitants are nearly always poorer than their urban counterparts which may increase their grievances but decreases their ability to marshal resources for conflict events.

Finally, the extent of prior technological development significantly influences the likelihood of future development for technical and sociological reasons. First, cellular and internet infrastructures can build off each other. Where access to cellphones is widespread, ISPs can deliver the internet by either upgrading existing towers or simply

adding on to the network at a fraction of the cost of building a new network. The progression of technological adoption in developed countries provides good evidence for this dynamic. ISPs didn't rebuild a new infrastructure with each transition from simple cellphones to home internet to mobile internet. The data being carried at each stage is essentially the same even if it does vary in its intensity. Instead, ISPs retrofit existing infrastructure to handle the new load. In this way, an infrastructure is cumulatively built. However, this series of development has not been replicated in much of the developing world; especially not in rural areas of the developing world. In much of the world, internet enabled smartphones are the first major technology that have seen widespread adoption. This makes the technological task at hand for ISPs more daunting as it precludes the possibility of building on prior infrastructure to deliver the internet.

It also poses a sociological problem. Though not a problem often discussed in areas with a history of exposure to modern ICTs, using modern ICTs requires a wealth of prior knowledge. Standard literacy, technological literacy, and the wherewithal to avoid bad actors are skills that are not innately known and are not always taught. Areas with a history of technological and educational investment can be expected to have these skills if not by regular exposure then through their involvement in education. Typing on a keyboard, for example, requires a notable investment of time assuming a person is literate in the first place. Where these skills are lacking, the demand for such technologies is diminished.

Such privation also influences the likelihood of ethnic conflict. States with lower levels of Human Development suffer from higher rates of ethnic violence. Not only are insurgents more able to offer relatively attractive economic and identity-based incentives to potential recruits, but widespread privation fosters grievances against the state. In states with uniquely low levels of Human Development, insurgent groups

often compete with the government as the sole and legitimate executors of violence. They may structure social life, offer economic benefits, and undertake a plethora of other tasks usually thought of as being under the purview of the state. Such instability fosters the likelihood of conflict.

These two sets of variables - ‘access’ and ‘environment’ - constitute the primary confounders of the theory posited. They influence both, the likelihood of spontaneous ethnic conflict and internet proliferation in meaningful ways. While other variables may influence the likelihood of internet penetration, they haven’t been included here for two main reasons. First, the goal of this project is not to expand on the predictors of ICT uptake but to explore the effect the internet has on a specific political outcome. Factors such as the speed of the internet may indeed determine the likelihood of internet penetration but there is little theoretical reason to believe such a variable has any effect on the likelihood of spontaneous ethnic conflict *independent* of internet penetration. As such, any information that might be gleaned from including such a term in the models presented would clarify very little while complicating model interpretation.

Secondly, terms which do not potentially influence both, the primary predictor and predicted variable are not necessarily sources of confounding. Similar to the first point, this point expands on why a broad number of variables haven’t been included for consideration. Undoubtedly there exists a wide literature on the predictors of spontaneous ethnic conflict. The fractionalization of a society, proximity to an election, prevalence of civil society groups; each has been robustly theorized as an explanation for ethnic riots. The reason for their omission is not that these are poor predictors of spontaneous ethnic conflict, but that there is little theoretical reason to believe that these factors are confounding the relationship between our primary variables of interest.

Proximity to an election, for instance, has seemingly no effect on internet penetration. The latter is a gradual process that proceeds largely without the direct influence of politicians. Moreover, technological development is essentially a valence issue worldwide. There are few, if any, anti-technological development parties meaningfully contesting elections around the world. While including terms to capture these effects may produce models that ultimately explain more of the variance in incidents of spontaneous ethnic conflict, doing so wouldn't substantively change the effect or significance of our primary variable of interest. If anything, adding unnecessary terms to regression models increases the likelihood of bias. While this isn't a problem if prediction is the ultimate goal, here the goal is to meaningfully interpret the magnitude of the effect of the internet on the likelihood of spontaneous ethnic conflict. The goal of this project is to produce parsimonious, interpretable models that shed light on the mechanisms explored theoretically. It is not to create large and unwieldy models that seek to explain as much of the observed variation as possible.

Directed Acyclic Graphs (DAGs) can serve to visualize this logic and help to explicitly state the causal pathways explored in this chapter (Pearl, 2000). Of widespread use in epidemiology and gaining traction in the Social Sciences, DAGs are an important tool that integrate prior knowledge about the relationships between variables of interest with quantitative methods. DAG informed regression models have been reported to produce highly effective results, even when compared to other, iterative procedures for covariate selection (Wen *et al.*, 2009). When used carefully, DAGs are powerful tools to visualize the logic and sequence of a theory, as well as to identify confounders whose exclusion will bias the relationship between IV and DV and non-confounders whose inclusion will bias the relationship between IV and DV (Morgan, 2013; Humphreys and Jacobs, 2017).

Confounders are those variables which influence the likelihood of the outcome

variable and the primary independent variable of interest. On the DAG given below, these are variables which show arrows to internet penetration and spontaneous ethnic conflict. In the DAG presented, these variables have been organized into the two sets explored earlier: ‘access’ on the upper half of the graph and ‘environment’ on the lower half. Poverty, Network Uptime, Rule of Law, Rurality, and Level of Prior Development all serve as confounders for the relationship being explored here. By contrast, Internet accessibility and speed are not confounders because they affect the relationship between internet penetration and spontaneous ethnic conflict only through internet penetration. As these variables have no independent effect on the likelihood of spontaneous ethnic conflict, no additional substantive information is gleaned by including them as terms. Moreover, Civic Associations and the Electoral Environment play much the same role albeit for the Dependent Variable. To the extent that they effect terms in the model, they do so only through ethnic conflict and as such, need not be included in the regression model.

In this section, I’ve explored possible sources of confounding for the theory explored. In doing so, I’ve identified two types of variables: ‘access’ and ‘environment’. These groups of variables influence the likelihood of many-to-many networks emerging and also the likelihood of spontaneous collective action. Among the first group are poverty and ICT uptime. Among the second are rurality, rule of law, and prior development. Further, I’ve explored why I’ve chosen to omit variables the extant literature has noted are important in explaining the prevalence of spontaneous collective action. In the interest of parsimony, I’ve chosen to prioritize the interpretability and parsimony of my models rather than attempting to maximize prediction. The preceding theorization suggests a number of hypotheses that will be explored in the next sections.

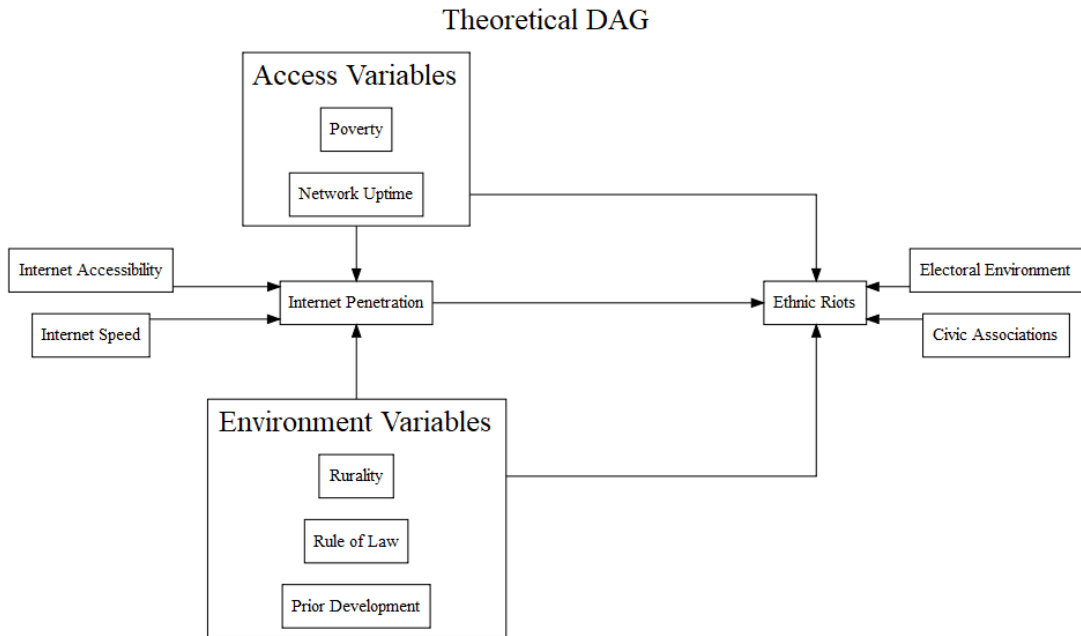


Figure 4.2: Directed Acyclic Graph

4.3 Data and Results

To construct my dependent variable, I rely on the ACLED dataset (ACLED, 2018). The ACLED dataset catalogues conflict events with information on time and geolocation. Units of observation are country-year. I construct a count variable by aggregating all events classified as ‘riots’ in the dataset by country-year. While filtering on keywords to isolate incidents of spontaneous ethnic conflict may be possible in specific cases, in a cross-national study it is unfeasible. Spontaneous ethnic conflict occurs along numerous axes across the globe. In some states it manifests as inter-religious conflict, in others along ethnic lines and in still others along other ascriptive identities. Constructing an exhaustive list of keywords to isolate such events that would accurately capture all meaningful spontaneous events worldwide while excluding organized events of conflict is an exercise in futility. Relying on the expert coding of ACLED participants obviates the need for such a task.

It should also be noted that the ACLED dataset covers a wide range of geographic regions and time periods. The geographic and temporal scope of this data is shown in the table below. Importantly, the ACLED dataset focuses on developing regions of the world, omitting notably wealthy regions including western Europe, North America, and East Asia. This has the effect of limiting the external validity of this model to regions characterized by higher relative rates of spontaneous ethnic conflict and lower relative rates of technological proliferation. As such, models fitted with this data ought not to be construed as reflective of the relationship between ICT penetration and spontaneous ethnic conflict at high levels of wealth.

To expand on the previous point, states included in this dataset fall notably lower on the distribution of a number of variables. States considered here tend to be poorer and lie lower on the Human Development Index. The global distribution of these variables can be observed in the charts below; the median of states included in the dataset used are shown as a red line. This fact should not detract from the findings presented here for a few reasons. First, developing countries are at the forefront of modern ICT proliferation. If we want to understand what effect the internet has on the likelihood of spontaneous ethnic conflict, there is no better place to look than states where it has proliferated rapidly and recently. Second, ethnic violence, while far from non-existent in post-industrial states, is far more common in developing states. Few states in Western Europe or North American have experienced ethnic-based civil wars in the last 50 years. By contrast, numerous states in the dataset used here have.

As disaggregating between cellular and internet use is of critical importance to this project, using good measures for each is important. To measure each, I rely on global data provided by the International Telecommunications Union (ITU, 2020). To measure internet penetration, the ITU measures the percentage of a state's population that reports regularly accessing the internet (once per two weeks). To measure cellular

Region	Range	Country	
Africa	2001-2017	Algeria	Malawi
		Angola	Mali
		Burkina Faso	Mauritania
		Burundi	Morocco
		Cameroon	Mozambique
		Djibouti	Namibia
		Egypt	Niger
		Equatorial Guinea	Nigeria
		Eritrea	Rwanda
		Eswatini	Senegal
		Ethiopia	Sierra Leone
		Gabon	Somalia
		Gambia	South Africa
		Ghana	Sudan
		Guinea	Tanzania
		Guinea-Bissau	Togo
		Kenya	Tunisia
	Lesotho	Uganda	
	Liberia	Zambia	
	Libya	Zimbabwe	
	Madagascar		
	2004-2017	Botswana	Chad
	2012-2017	Benin	South Sudan
Asia	2010-2017	Bangladesh	Sri Lanka
		Cambodia	Thailand
		Pakistan	
	2011-2017	Myanmar	
	2015-2017	Indonesia	
2016-2017	India		
Middle East	2016	Saudi Arabia	
	2016-2017	Bahrain	Lebanon
		Iraq	Turkey
		Israel	Yemen
		Jordan	

Table 4.1: Dataset Scope

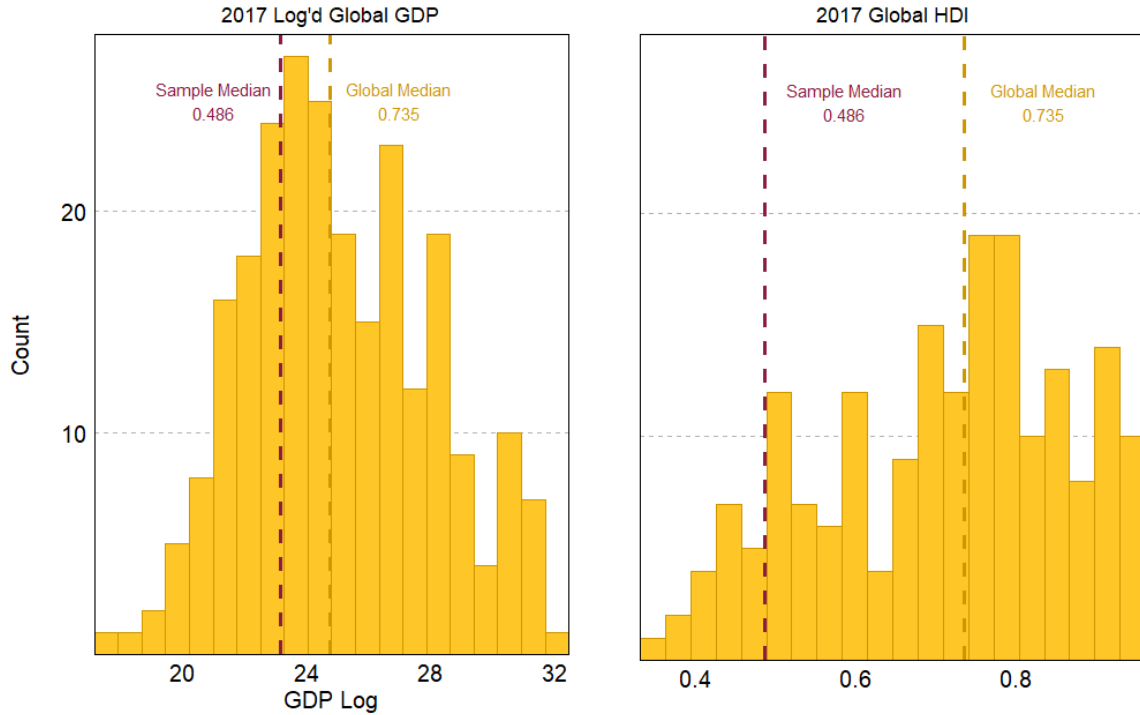


Figure 4.3: Independent Variables Histograms

use, the ITU measures the number of cellular subscriptions per 100 people. The former spans from zero to one hundred while the latter spans from zero to an undefined upper bound. Since individuals can have multiple cellular subscriptions, this variable can exceed one hundred.

While these measurements of the key variables may seem unusually simple, relying on such operationalizations has numerous strengths. First, with regards to the internet penetration variable, no one knows better what technology is being used than the people using it. Concerns over whether people are falsely reporting internet usage when it isn't occurring or failing to recognize internet usage as such are likely unwarranted. Patterns evident in the ITU's dataset also track closely with alternative measures of internet penetration taken at the country level as shown in the next chapter.

Furthermore, given that disaggregation is a key task undertaken here, there may

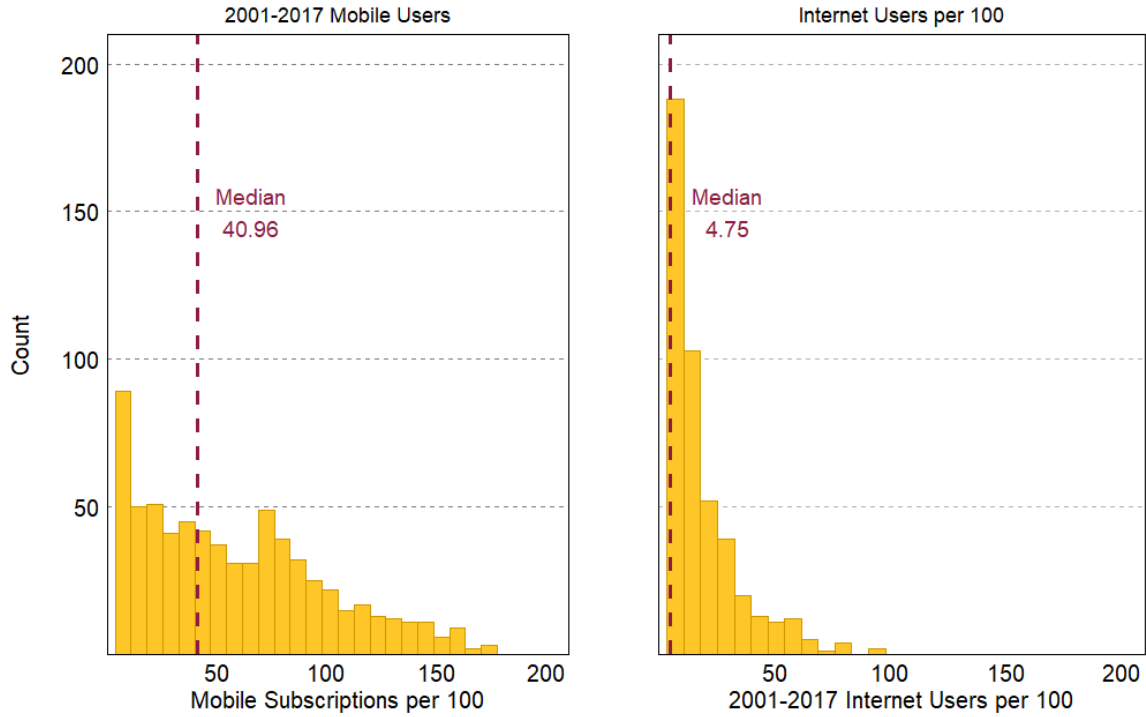


Figure 4.4: Mobile and Internet Penetration Rates

be concerns that the internet penetration variable merely captures the same trends that the cellular penetration variable does or that it acts as a lagged version of that variable. This does not seem to be the case. While it is true that these variables are correlated - a characteristic we would expect given each's overlapping period of proliferation - significant intra-state variation suggests that these variables are not reflective of the same underlying trend. Plotting the two variables against each other brings this dynamic to the fore. While states with higher rates of cellular penetration are more likely to have higher rates of internet penetration, variation in each is significant. Numerous states exhibit shockingly high levels of cellular penetration while simultaneously exhibiting exceedingly low levels of internet penetration.

Moreover, there is some evidence to support the claim that technological advancement has not occurred in the same, step-wise manner in the developing world as it has in the developed world. Plotting the difference between cellular penetration rates

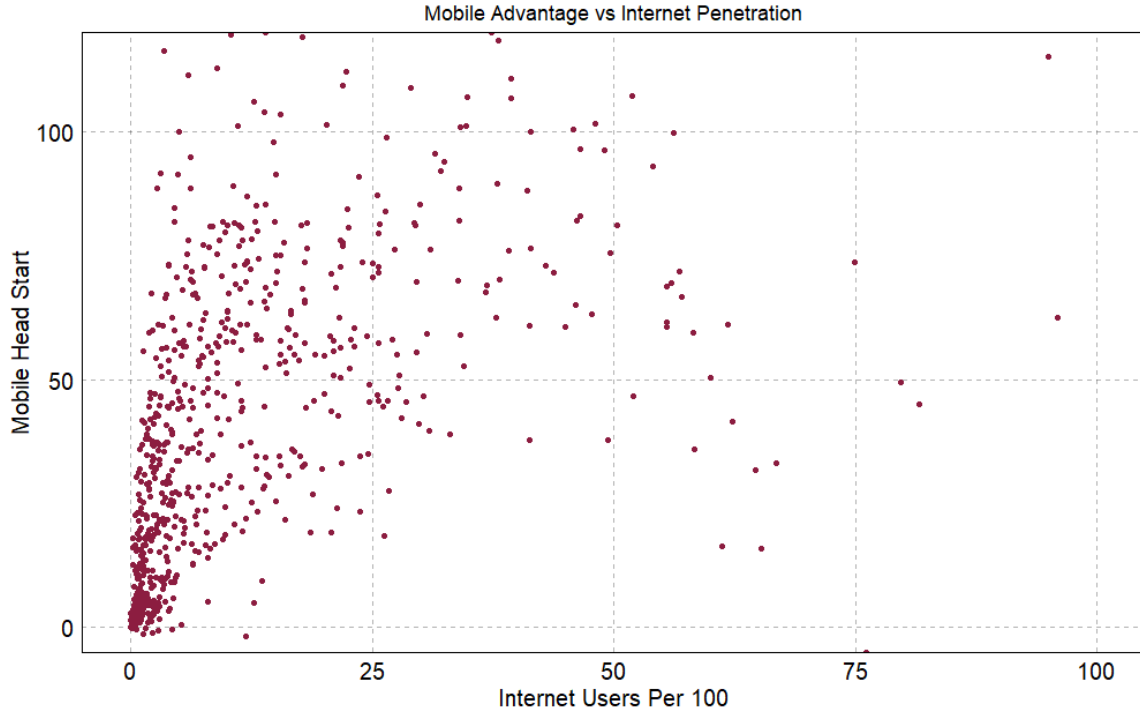


Figure 4.5: Mobile Advantage vs Internet Penetration

and internet penetration rates against the latter shows that there are no thresholds in cellular penetration after which internet penetration begins in earnest. There does not appear to be a necessary floor to cellular penetration that makes internet penetration feasible as evidenced by the handful of observations which fall below 0 on the X axis.

Further the correlation between a lagged cellular access variable and internet penetration is no higher than the correlation of its non-lagged variant. It does not appear that the internet penetration variable is picking up trends from the cellular penetration variable. To drive this point home, correlations between many of the other variables used here are in a similar range. The relationship between the Human Development Index and Internet Penetration, for instance, is also positively correlated though, as with the penetration variables discussed, there is good theoretical reason to believe that these are also picking up distinct concepts.

	<i>Dependent variable:</i>	
	Internet Users per 100	
	(1)	(2)
Mobile Subscriptions	0.255*** (0.008)	
Lagged Mobile Subscriptions		0.254*** (0.008)
Observations	788	726
Adjusted R ²	0.543	0.592

*p<0.1; **p<0.05; ***p<0.01

Table 4.2: Lagged and Non-lagged Internet Prediction

Beyond these primary explanatory variables are a slew of controls that threaten to confound the relationship between the primary IV and DV. Again, the goal of these models is less to explain the greatest amount of variation and more to establish a robust relationship between variables of interest. As such, controls included here are those which have been theorized to influence both, the primary IV and DV. Terms capturing electoral effects, civil society rates, and other explanations for ethnic riots are not included as there seems to be little theoretical reason for these variables to influence technological proliferation and ethnic conflict. Measures for population size, area, and GDP were provided by the World Bank and are log transformed (WorldBank, 2019). Further, measures for Rule of Law and percent of population living in rural areas were also provided by the world bank. Finally, to capture extant

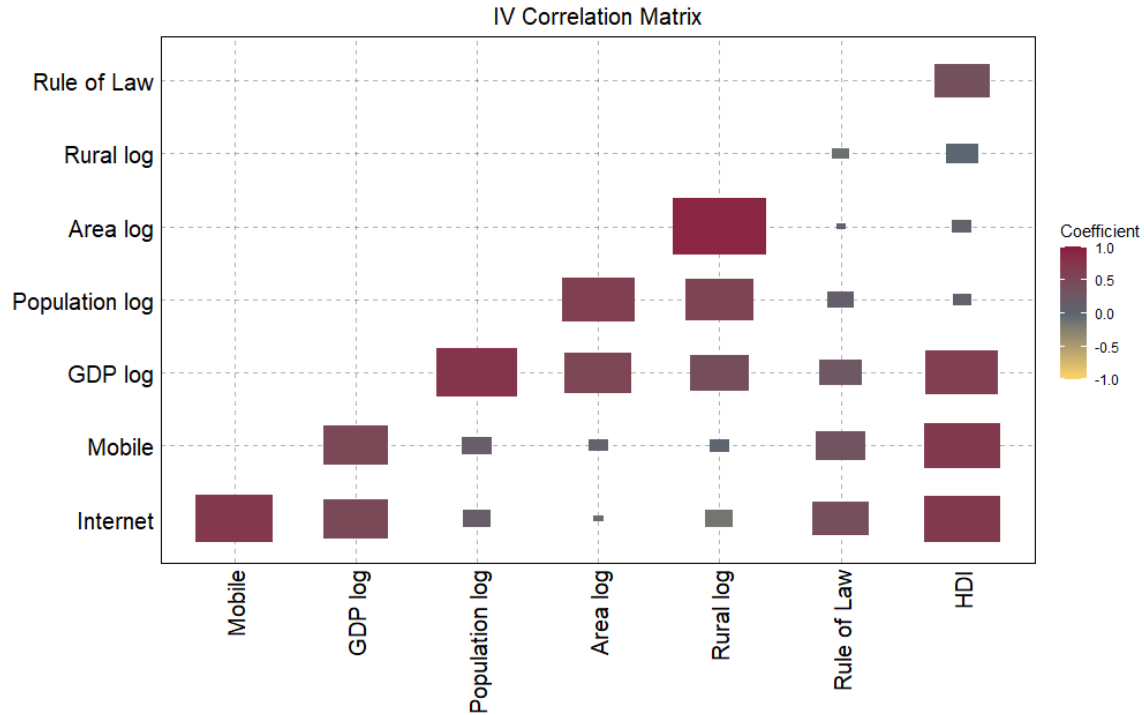


Figure 4.6: Independent Variables Correlation Matrix

levels of development, I use the UN Development Program’s Human Development Index (HDI, 2019).

As my dependent variable is a count variable that exhibits characteristics of overdispersion, I use a negative-binomial model to fit my data. Further, I take into account various model controls to account for the longitudinal time-series nature of the data used. I cluster standard errors on country and region while including fixed effects terms for year. Furthermore, I include versions of each main model with a lagged dependent variable as a robustness check.

Model 1 is fitted with all observations in the dataset and shows no statistically significant effect for internet penetration. This finding provides tepid support for Hypothesis 1 which posits that there will be an independent relationship between both technologies and the likelihood of spontaneous ethnic conflict. Were these variables moving together, we may expect them to consistently take on coefficients in the same

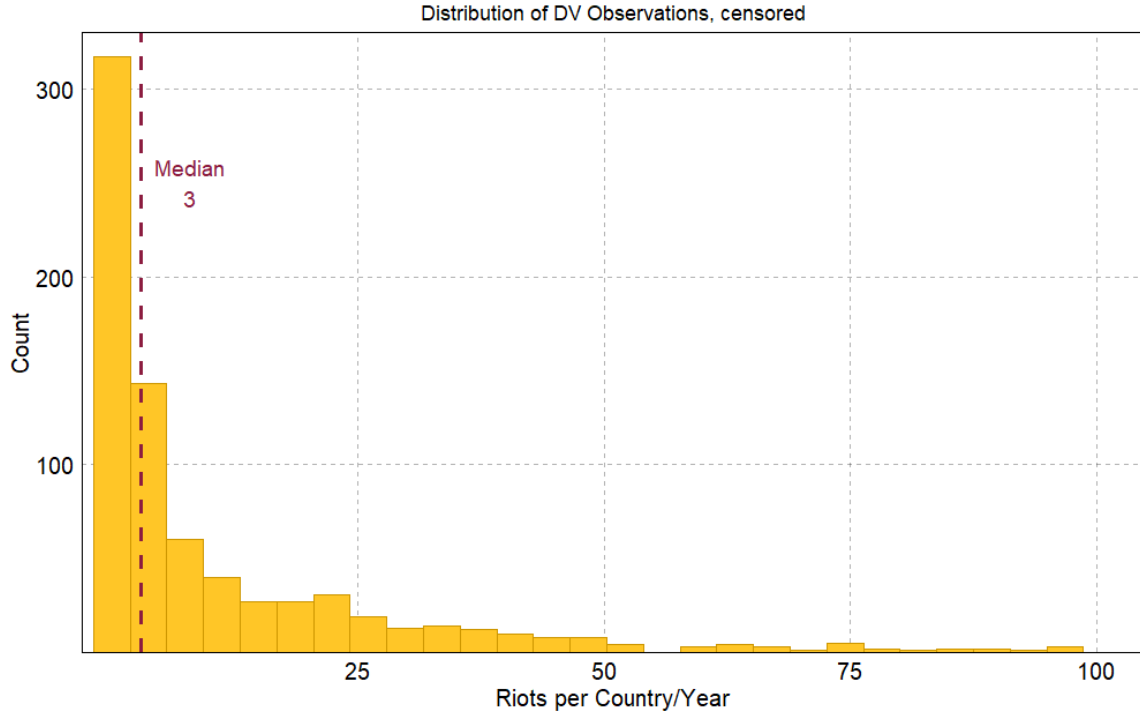


Figure 4.7: Dependent Variable Histogram, Censored

direction and of similar statistical significance. A non-finding supports the idea that each variable is capturing an independent dynamic.

Moreover, given theorization, this is unsurprising. The overwhelming majority of observations are at exceedingly low levels of internet penetration. If a threshold does characterize the relationship between internet penetration and spontaneous ethnic conflict, it's likely that the large number of low observations would result in a nonsignificant coefficient for this variable.

To test this, I iteratively refit this model, excluding all observations that fall below a given percent of internet penetration. This refitting results in approximately 20 models, each excluding observations for which internet penetration falls below 0-22%. Models fitted with datasets more stringent than the 22% cutoff do not reliably converge given the small number of observations and have not been included. Coefficients for the internet penetration term in each of these models along with an error bar are

<i>Dependent variable: Riots</i>				
	<i>High Penetration</i>			
	<i>Lagged DV</i>	<i>High Penetration</i>	<i>Lagged DV</i>	
	<i>Clustered SE's</i>	<i>Clustered SE's</i>	<i>Clustered SE's</i>	<i>Clustered SE's</i>
Lagged DV		0.003*** (0.0003)		0.004*** (0.0004)
Internet	0.001 (0.007)	0.008 (0.008)	0.024*** (0.008)	0.020** (0.008)
Cellular	0.014*** (0.002)	0.010*** (0.002)	0.002 (0.004)	-0.009** (0.004)
GDP Log	-0.476*** (0.114)	-0.451*** (0.125)	-0.209 (0.242)	-0.262 (0.268)
Population Log	1.448*** (0.114)	1.176*** (0.105)	1.066*** (0.219)	0.896*** (0.233)
HDI	5.707*** (1.037)	4.873*** (1.086)	1.451 (1.861)	3.919** (1.699)
Area Log	-0.098* (0.067)	0.044 (0.060)	0.051 (0.086)	0.059 (0.084)
% Rural Pop.	0.0004 (0.0004)	0.001 (0.0004)	-0.001 (0.001)	-0.001 (0.001)
Rule of Law	-0.217* (0.115)	-0.208* (0.121)	0.158 (0.234)	0.030 (0.242)
Constant	-13.314*** (1.125)	-10.979*** (1.187)	-14.043*** (1.961)	-10.621*** (2.426)
Observations	705	685	142	131
Log Likelihood	-2,327.094	-2,205.058	-644.656	-575.904
θ	0.624*** (0.037)	0.681*** (0.042)	0.851*** (0.096)	1.041*** (0.128)
Akaike Inf. Crit.	4,702.188	4,460.116	1,327.311	1,191.807

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 4.3: Cross-national Regression Results

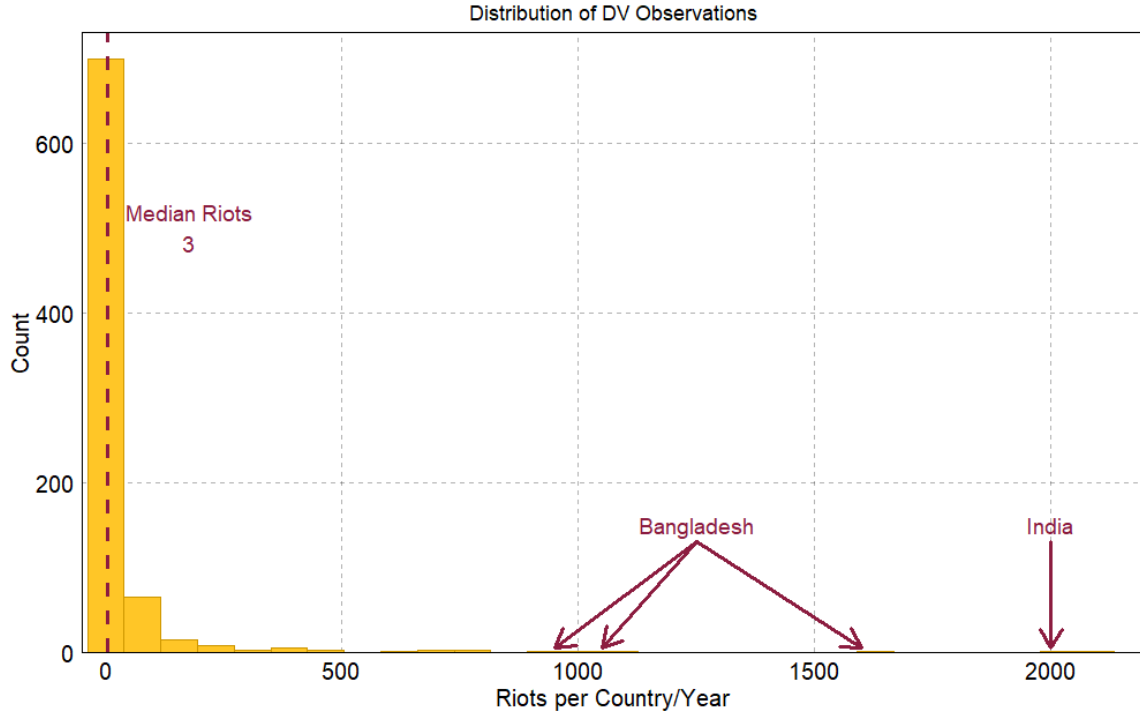


Figure 4.8: Dependent Variable Histogram

shown in the chart below with the number of observations given as a bar chart.

In support of hypothesis 2, the effect of internet penetration on the likelihood of ethnic conflict seems muted and statistically insignificant for the first 10% of penetration. Beyond this threshold, however, internet penetration begins to have a statistically significant and positive relationship with the likelihood of spontaneous ethnic conflict. This relationship intensifies around 15% with the effect of the internet expressing the types of threshold characteristics Hypothesis 3 predicts. To explore this relationship further, I present the model fitted at 20% penetration.

In further support of hypothesis 1, internet and cellular proliferation have a distinct influence on the likelihood of spontaneous ethnic conflict. Furthermore, it is unlikely that time effects are not driving this result as the 20% model contains year fixed effects. To further support this point, I again iteratively fit the model by subsetting data on year instead of penetration rates. Coefficients for internet penetration

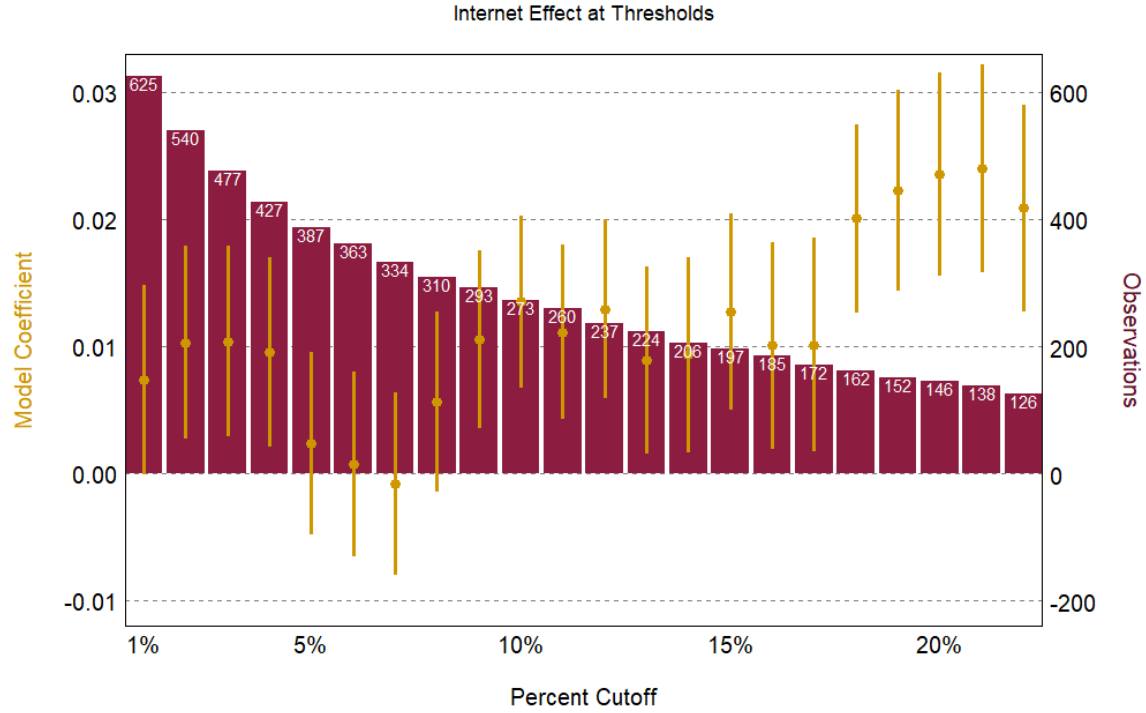


Figure 4.9: Internet Effect at Thresholds

and cellular penetration along with error bands are shown; the latter is colored in blue, the former in red. No temporal pattern seems evident; were the higher penetration rates of later years driving this effect, we would expect to see such a pattern emerge in this test. Instead, we see coefficients for these technologies cluster closer to 0 as penetration rates increase, replicating findings from the extant literature. Such a result suggests that it is the theorized threshold that is driving our results and not merely the increase in penetration rates that comes with time.

The preceding analysis offers evidence to support the three hypotheses presented. While such a quantitative approach can give a good view of the average effects and general outline of the process in question, doing so isn't necessarily suited to understanding actual causality or the contextual factors that may condition our relationship. The limitations of these models suggest where a more fruitful and in-depth qualitative analysis can lay bare attenuating circumstances and the reality of internet

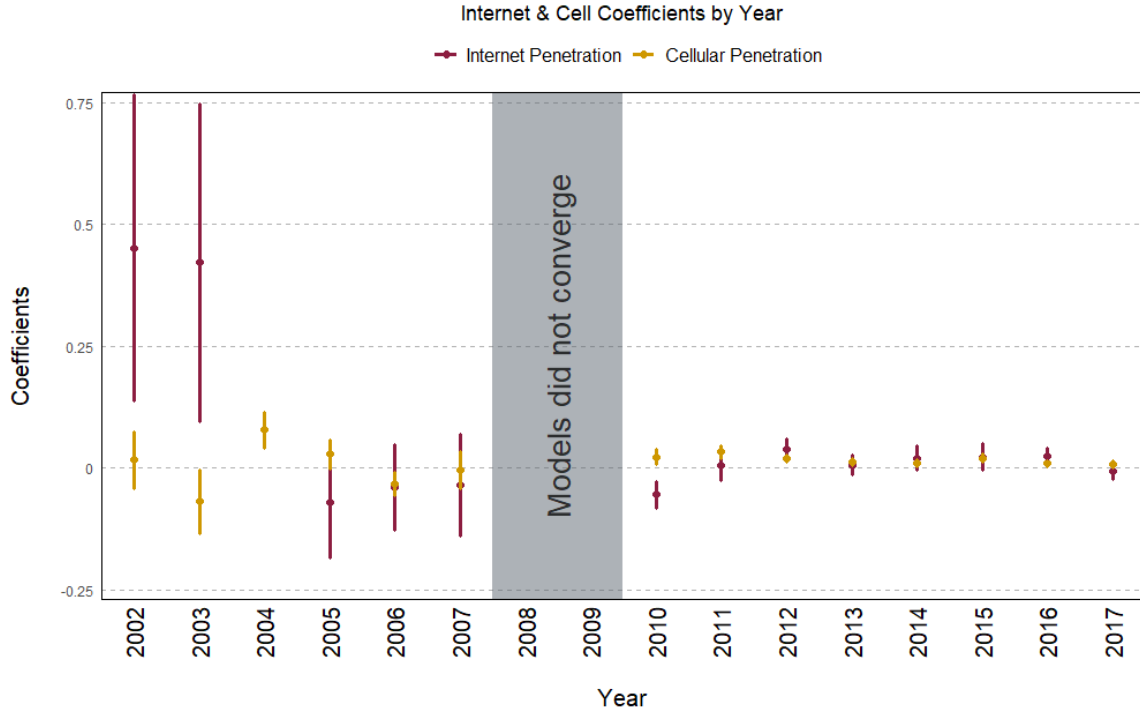


Figure 4.10: Internet Coefficients Subset by Year

penetration in one place. How does the internet proliferate and why? What actors play a role in that process? What influence does it have on the likelihood of ethnic conflict and why? India is a ripe case for such analysis. India exhibits extreme values for both predicted and observed riots and returns fairly high residuals in many of the models, experiencing higher rates of spontaneous ethnic conflict than one might expect. Why is this the case? In the next section, I explore this deviant case with a case study of the country, exploring the contextual factors that inform internet proliferation in India and why we observe this deviance.

4.3.1 Assumptions and Case Study Opportunities

These results assume certain contextual factors that inform internet proliferation. While the theory and evidence provided suggest that the spread of the internet ought to cause higher rates of ethnic rioting, there are conditions under which this expect-

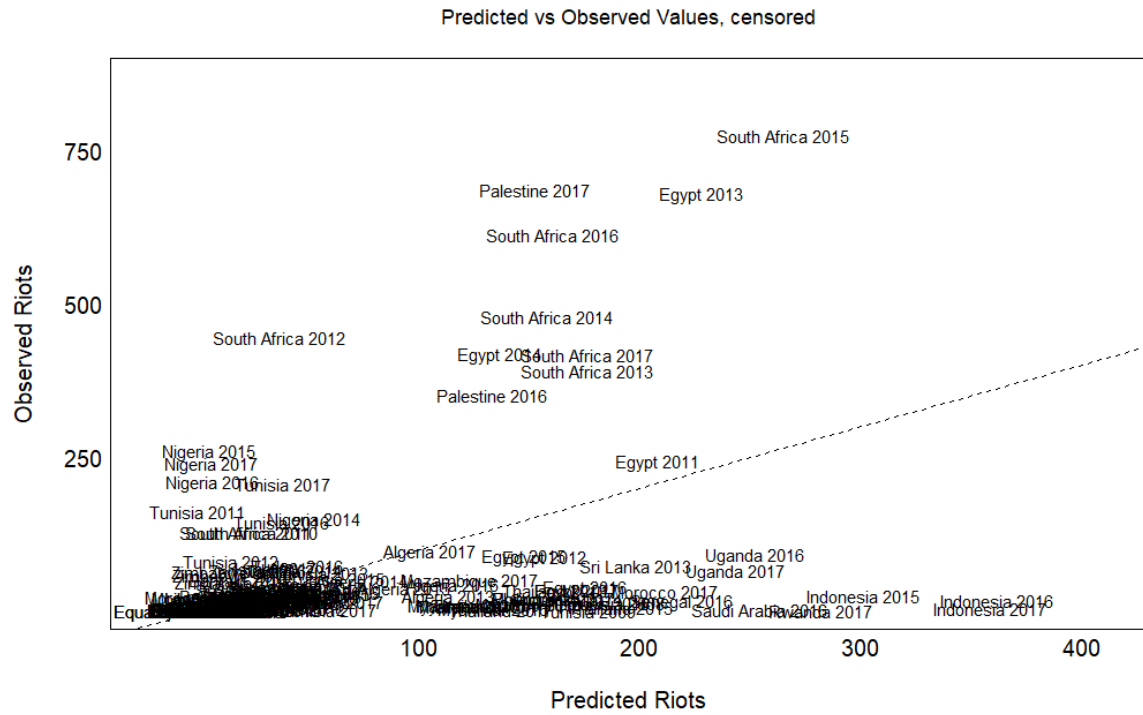


Figure 4.11: Predicted vs Observed, Censored

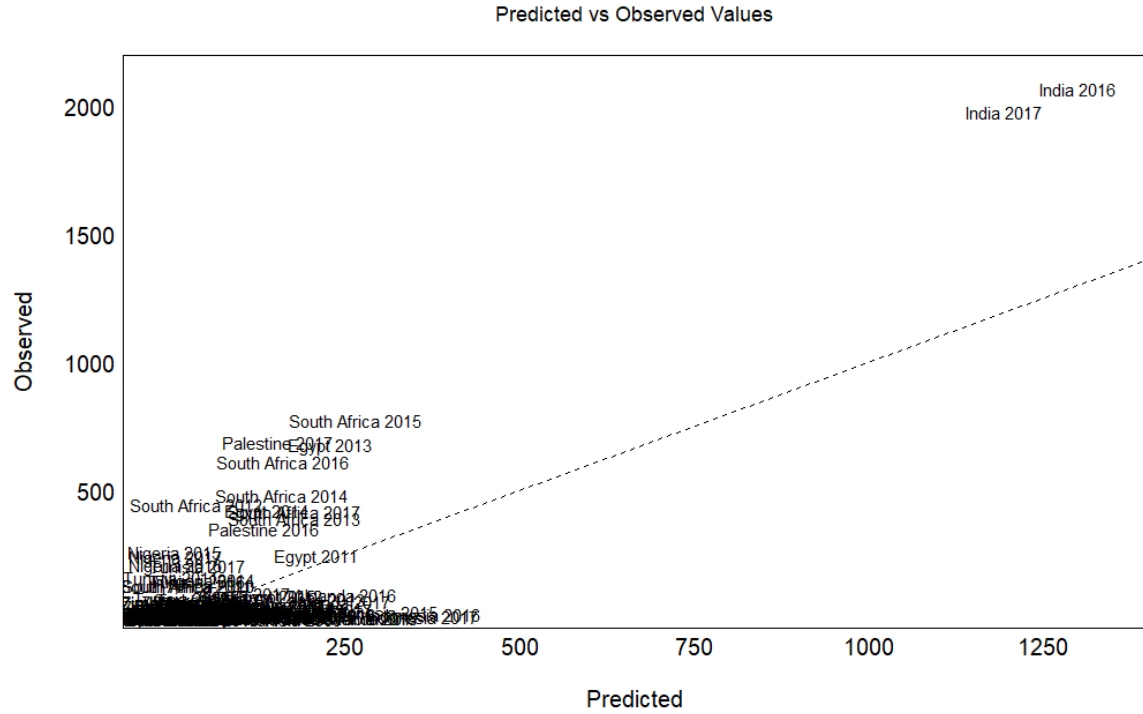


Figure 4.12: Predicted vs Observed

tation might be subverted. State vs private proliferation of the internet is one such condition. While this relationship is studied in more depth in the following chapter, a brief overview is worth consideration.

While it is often assumed that internet proliferation occurs almost exclusively as a result of private enterprise, this is an increasingly untenable assumption to make. With developing countries investing vast amounts of time and money into building public and semi-public internet infrastructures, it's worth asking whether such endeavors contextualize internet use in notably pacifying or inflammatory ways. The case of India suggests the former. While private entities capture a large part of the ISP market share, India has engaged in the world's largest state-sponsored internet infrastructure project in the world. The Bharatnet program and its attending sub-projects have focused heavily on building a national fiber-optic internet infrastructure and connecting Indian citizens to it via Wi-Fi hotspots (BBNL, 2019a). Interestingly, where these hotspots are deployed, the likelihood of riot incidents decreases relative to non-hotspot covered areas. Why might this be so?

When communication technologies proliferate via private entities, introduction to the medium is generally accomplished through social connections. Friends, neighbors, and co-ethnics introduce each other to the services they use online and, perhaps more importantly, the networks that claim membership in. The urge towards insularity is facilitated in such a context. By contrast, when proliferated by the state, the internet is introduced to people in its capacity as a delivery mechanism for state services. Bharatnet is not merely in the business of bringing the internet to rural villages. Its introduction to a given area is accompanied by large public-information campaigns that introduce the internet as a tool that facilitates state services. Mobile banking, pensions, unemployment benefits, tele-medicine, weather reports; each of these services contextualize the internet not only as a social network but as a utilitarian tool

that speaks to identities beyond the strictly ethnic.

Such a contextualization may reduce the likelihood of spontaneous ethnic conflict insofar as it minimizes the likelihood that participants see the technology primarily as helpful in broadcasting the performance of ethnic riots. In using the internet as a tool to gain information on weather patterns and plan agriculture for the year, villagers can reinforce an identity with other farmers that cuts across boundaries of ethnicity. Furthermore, when introduced as a service of the state, the internet can serve as a medium through which inter-communal ties and citizen-state ties are strengthened. The introduction of a Wi-Fi hotspot, however trivial it may seem to those in developed countries, is a meaningful and momentous symbol of state intervention. Such a project and the services it brings to villages represent the extension of a state that is meaningfully addressing material deficiencies in the lives of average citizens and building connections between them in ways that transcend ethnic boundaries.

4.4 Summary

In this chapter I've explored the idea that the internet and cellphones ought to be considered separately when studying ICTs in the context of spontaneous ethnic conflict. To do so I began by exploring why such a distinction is empirically warranted. Following this I articulated hypotheses that capture this difference and finally I presented the results of a cross-national quantitative analysis that provide evidence for this position.

When comparing ICTs across long time spans, scholars have been attentive to the different networks of communication produced. Given that decades often pass between the emergence of one technology and the emergence of a new technology, such a distinction is easy to make. The pace of modern innovation has made such a task difficult while blurring the lines between technologies. Newspapers and the

radio were prima-facie different in a way that cellphones and the internet are not. The former employed vastly different media, used electronics in different ways and differ in a sensory capacity. And yet, the latter pair are arguably as different in their effects as the former. In the context of spontaneous ethnic conflict, disaggregating these technologies yields important insights.

In the next chapter, I explore these insights by examining the case of India. In it, I probe why the country produces results counter to what we would expect given the theoretical framework explored in this chapter. Why is it that cheap, broadly proliferated internet has a pacifying, rather than inflaming effect on the likelihood of spontaneous ethnic conflict? What dynamics of internet proliferation resulted in this outcome and can such a dynamic be applied to other cases? These questions ground the abstractions of this chapter in a realized case, helping to flesh out the contextual factors and processes that give color to the relationship between internet penetration and the likelihood of spontaneous ethnic conflict.

Chapter 5

CASE STUDY: INDIA

'The smartphone is the embodiment of the new Indian Dream'

-Ravi Agrawal, *India Connected*

Common to the literature on technology and its proliferation is the metaphor of the "leap"; the sudden and dramatic adoption of a radically new paradigm of communication. While this metaphor is helpful in that it captures the speed with which modern ICTs have proliferated, it fails to illuminate the factors that contextualize such a leap. The internet does not randomly sprout from the ground in any given village; its dissemination is planned, either by corporations, governments, or by communities themselves and its use post adoption is contextualized by these actors. Is the internet a stage on which violence can be performed or is it a medium for connection and pacification? The contextual factors surrounding its dissemination help answer this question.

Recognizing the disjuncture between how we theorize about ICT proliferation and how these technologies *actually* proliferate lays bare the necessity of observing the spread of the internet in a realized context. India serves as a compelling case for such an observation. In this chapter, I examine why access to the internet appears to depress the likelihood of ethnic conflict in a country known for its regular and deadly ethnic conflicts. I argue that the contextualization of the internet as primarily a medium through which Indian citizens can access resources diminishes the likelihood that it is used to intensify exclusionary group dynamics. This contextualization

de-emphasizes its potential as a stage on which ethnic violence can be efficaciously performed.

I'll begin by making the case for why India can serve as a prime choice for a case study. First, a wealth of literature on ethnic conflict in India paints a nuanced picture of why people engage in ethnically motivated conflict behaviors. Whether it be due to electoral incentives (Wilkinson, 1984), civil society institutions (Varshney, 2001, 2003), historical legacies (Verghese, 2016), or any number of other factors, such a deep well of knowledge allows us to paint a complete picture of how our variables of interest interact. Additionally, India exhibits extreme values for both, the Independent and Dependent variable in cross-national analysis. This characteristic promises to bring any mechanisms into sharp relief and gives us leverage into understanding what variables condition and inform how the internet facilitates (or doesn't facilitate) ethnic conflict.

Next I focus on the Bharatnet and Wifi Choupal programs. These undertakings have laid the fiber and WiFi infrastructure upon which broad internet proliferation in India has been built and are major undertakings of the Indian state. WiFi Choupals are functionally state subsidized and operated point of connection to the internet. Further, WiFi Choupal access points emanate from physical 'Service Centers' which provide locals with numerous welfare-related services including help attaining state ID cards, unemployment benefits, and technological training. I argue this explains why internet proliferation in India seems to depress the likelihood of spontaneous ethnic conflict. State proliferation and its attending services contextualize the internet primarily as a means to attain resources rather than a medium that carries performances.

Following this I present quantitative analysis of spontaneous ethnic conflict events in India. I use sub-district level data to show that the presence of state-sponsored

WiFi hotspots and their attending institutions diminishes the likelihood of ethnic riots. Moreover, I demonstrate that the proliferation of public WiFi hotspots under the Choupal program and Bharatnet fiber infrastructure supports the assumption that these services are evenly distributed between rural and urban areas. For this and other reasons, it is unlikely other factors are driving the observed relationship. Moreover, I argue this analysis is unique in its level of spatial disaggregation.

Finally, I interpret the qualitative and quantitative evidence to understand why internet proliferation resulted in a lower likelihood of spontaneous ethnic conflict in India. I argue that tying the proliferation of the internet in India to state-sponsored welfare programs framed the ICT in a way that diminished its potential to exacerbate exclusionary tendencies. Modern ICTs, I argue can facilitate peaceful outcomes under certain conditions.

5.1 Justification

Why bother studying India? One good reason is that India is a country which has experienced its fair share of ethnic conflict. From the country's inception, India's history has been irrevocably marred by innumerable such incidents. Whether considering the deadly reverberations of partition (Talbo and Singh, 2009), the Amritsar massacre (Tully and Sathish, 1985), the Babri Masjid incident (Bacchetta, 2002), or simply the prevalence of Hindu-Muslim riots, India stands out in the extent to which ethnic violence permeates society. Ethnic tensions inform not only quotidian politics but the dramatic and sensationalized aspects of national politics as well. Importantly, these tensions do not seem to have faded with time.

The rise of Hindu Nationalism speaks to how readily ethnic insecurities are capitalized upon. Narendra Modi's BJP government won election in 2014 on the basis of Hindu nationalist rhetoric and in 2019, intensified the rhetoric to win an outright

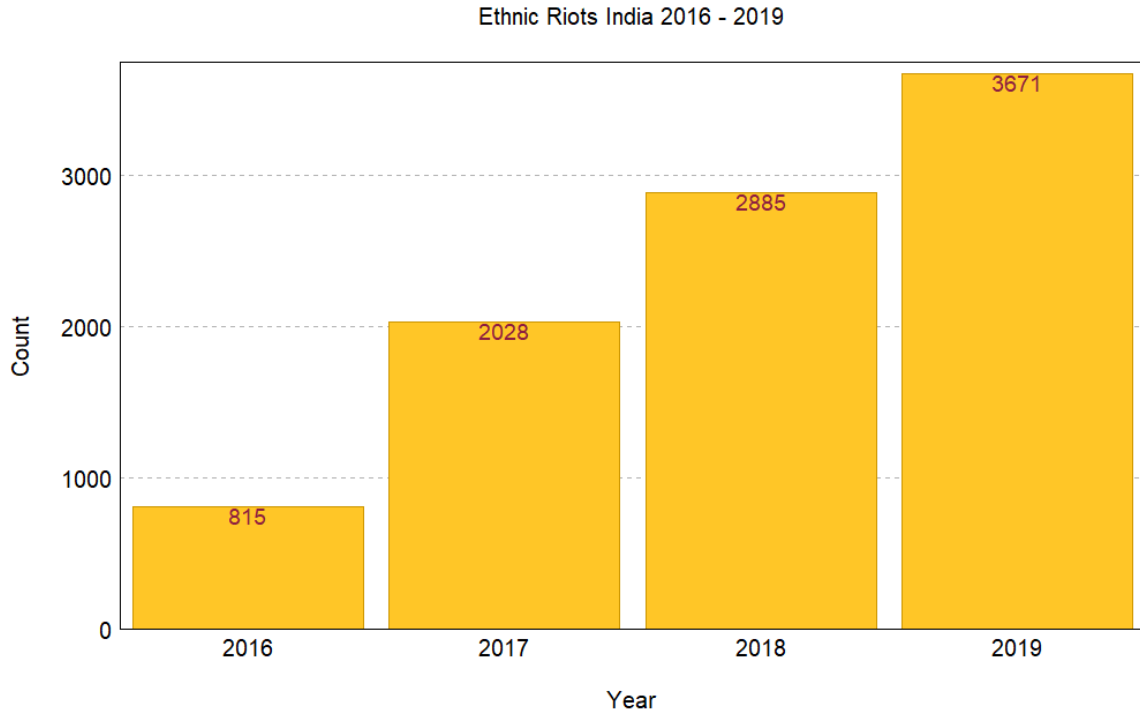


Figure 5.1: India Riots 2016 - 2019

majority in parliament (Vaishnav, 2019). As if to emphasize the point, numerous BJP lawmakers punctuated their oaths of office with cries of ‘Jai Shri Ram’ (Hail Lord Rama) (BloombergQuint, 2019), a cry that has become popular among Hindu rioters (Dutta, 2019). While nominally a secular state, India’s politics have noticeably veered towards the sectarian as of late, with incidents of spontaneous ethnic violence on the rise in the wake of ever larger BJP victories.

Moreover, this rhetoric has translated into government policies that exhibit increasing hostility to India’s ethnic and religious minorities. The recent revocation of Kashmir’s independent status belies a desire to disenfranchise India’s Muslims (BBC, 2019). Other equally as transparent policies targeting citizenship have also been implemented. Reminiscent of neighboring Myanmar’s citizenship laws (ICJ, 2019), BJP lawmakers have campaigned heavily for the implementation of a National Register of Citizens (NRC) which would strip Indians incapable of proving residency of their

citizenship (Wyeth, 2020). First implemented in Assam, one of India's north-easterly states with a significant Muslim population, the law effectively stripped nearly 2 million people of their Indian citizenship (Livni, 2019).

Rampant ethnic hostility at the societal level has also seen a significant uptick since the election of the BJP. Religious and ethnic tensions have played pivotal roles in defining these conflicts. In a particularly egregious example, numerous Hindu men bound and beat a Muslim Man - Tabrez Ansari - in June of 2019 (Das, 2019). In what is most accurately described as a lynching, the crowd forced Ansari to chant 'Jai Shri Ram' and 'Jai Hanuman' (Hail Hanuman) while being recorded on video before beating him to such an extent that Ansari succumbed to his wounds four days later. This video was later shared widely on social media.

To say that India has been and continues to be a society wracked by ethnic conflict in the most violent sense of that word is appropriate. While disheartening, these circumstances also lend themselves to scholarly analysis of trends in spontaneous ethnic conflict. Spontaneous ethnic conflict is widespread, *prima facie* recognizable, and fairly well documented given India's status as a relatively robust democracy with a free and fair press.

The existence of widespread spontaneous ethnic conflict, however, is not the sole reason to study India. Tied with perhaps only Rwanda for the wealth of scholarly material produced on the country's ethnic dynamics, few cases have generated more theoretical contributions to the study of ethnic conflict than India. This provides a solid foundation to build further theories upon. It's likely we have no fuller picture of how ethnic conflict emerges and why than in the Indian context.

Various particularities of the Indian case also make it ideal for deeper analysis. Most importantly, in quantitative analysis, India acts as an extreme example vis-a-vis the dependent variable - ethnic riots. Cross-national models underpredict the number

of such events though as I show in this chapter, this coarse level of analysis can be misleading. Choosing an extreme case allows us to observe the mechanisms and particularities at play with greater ease, pinpointing factors that may have otherwise been missed via quantitative analysis (Seawright and Gerring, 2008). Choosing such a case can help discover the limits of the theory posited and offering a fuller picture of the mechanism at work.

Beyond these methodological and circumstantial justifications, India's relationship with the internet proves compelling and underexplored. Two programs, the Bharatnet program and WiFi Choupal program, have yet to be probed academically for their effect on spontaneous ethnic conflict. Moreover, India's frequent use of internet shutdowns in response to and in anticipation of collective action signals state awareness of the pivotal role communication technologies play in facilitating conflict (Rydzak, 2018).

While each of these facets will be explored in depth further along in this chapter, it's worth briefly considering why these particularities make India such a compelling case to study. First, the Bharatnet program constitutes one of the most ambitious and infrastructurally complex state-run internet projects in the world. Having laid 375,550 km of fiber optic cable across India as of October 2019, the Bharatnet program has extend a state-of-the-art internet infrastructure to even the most rural reaches of India (BBNL, 2019a). This project is interesting for two main reasons. First, by focusing on fiber-optic technology, the project embodies the metaphor of the leap, developing a dependable, high-speed enabling infrastructure to places where even land-line telephones are sparsely accessible.

Second, the program has planned this infrastructure with an eye towards addressing the rural/urban divide (IIT, 2018)¹. Bharatnet infrastructure reaches just as

¹It should be noted that said agnosticism mostly refers to the delivery of internet to places which

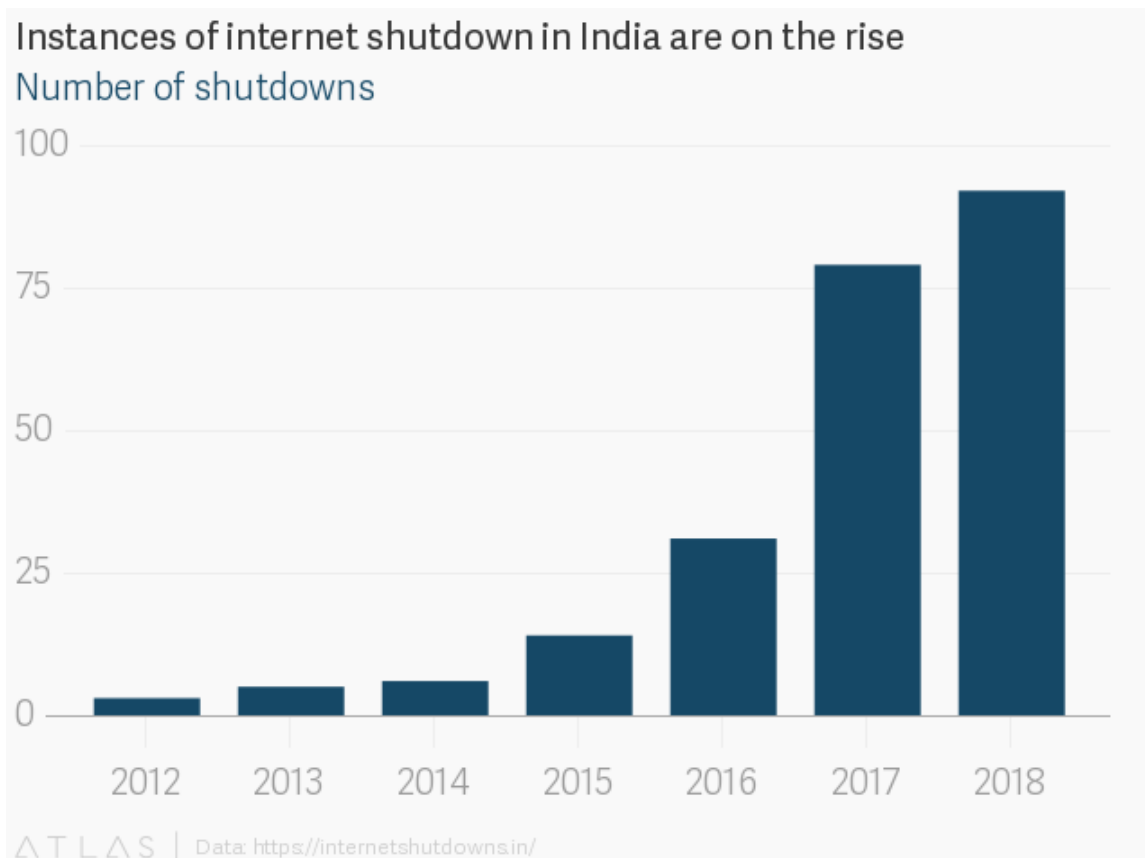


Figure 5.2: Indian Internet Shutdowns

thoroughly to sparsely populated rural areas as it does urban areas. Many of the case studies considering internet proliferation consider urban populations exclusively or assume that proliferation has proceeded equally in rural and urban areas; the latter being a particularly suspect assumption. Examining India allows us to probe and justify this assumption with greater certainty.

are not already being adequately served by private entities. In Bharatnet’s case, this overwhelmingly means rural areas. Indeed, the report concerning Phase II planning for the BharatNet program begins ‘India has a very large urban-rural digital divide’ and continues ‘bridging the digital divide needs to be an initiative by the government as internet connectivity can play a significant role not only in making administration efficient and transparent but also in generating employment and rapid dissemination of information’ (IIT, 2018). The BharatNet Program, as will be explored later, has been shockingly effective at addressing this disparity.

The WiFi Choupal program is also compelling for the novelty of its goals. Tasked with providing internet access to Indian citizens, WiFi Choupal capitalizes on Bharatnet infrastructure to create public WiFi hotspots that are accessible via government issued ID. Data plans are also highly subsidized by the government. At 25 rs per 5 Gigabyte, these plans offer a surprisingly affordable option for Indian citizens to access the internet (Choupal, 2019b). Like Bharatnet, WiFi Choupal has prioritized minimizing the gap between rural and urban connectivity. With Choupal hotspots active at all government run train stations and village-wide hotspots currently sprouting up around India, WiFi Choupal seems to be making slow but steady progress towards a fully connected India. Moreover, WiFi Choupal represents a new wave in internet proliferation policy. While prior efforts at internet proliferation focused on mobile technology, Choupal focuses on WiFi hotspots, a far cheaper and more dependable complement (Fogg, 2018)². Finally, given that WiFi Choupal is currently in its early to middle stage of deployment, there is a great deal of variation when considering which areas do and don't have Choupal enabled hotspots. Capitalizing on this variation should help us observe the influence an accessible, affordable, and high-quality internet have on the likelihood of spontaneous ethnic conflict.

5.2 Bharatnet and Early Internet Access

As with most developing countries, the internet arrived in India suddenly and with great fanfare. Leading this charge was the cellphone. While the country had approximately 4.64 mobile subscriptions per 100 people in 2004, by 2011 this number

²While the report cited mentions the slight advantage to mobile data via cellphones in terms of upload and download speeds, this advantage is small and, as the report mentions, reflects modern trends. India's infrastructure is fairly new and, more importantly, cost is an important factor in the building and maintenance of such a network. WiFi networks are more affordable and easier to maintain for reasons explored later and constitute an important part of a robust digital network.

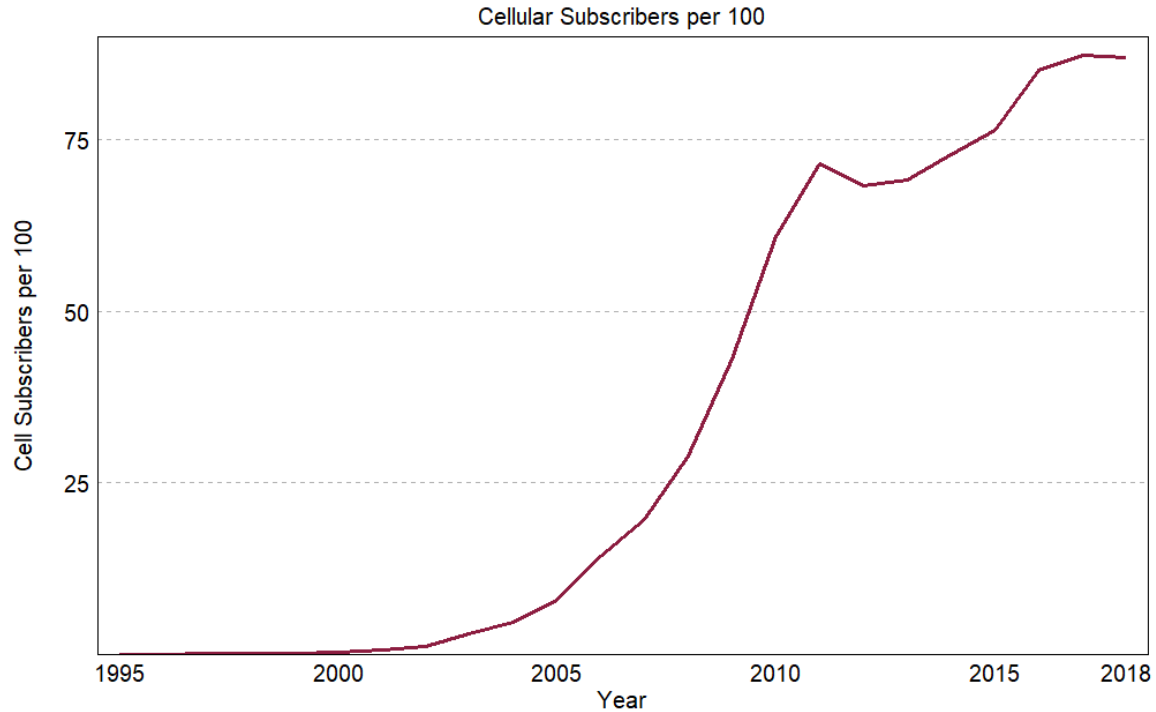


Figure 5.3: Cellular Penetration

had jumped to 71.67 and by 2017 it sat at 87.28 per 100 (WorldBank, 2019).

This dramatic and rapid onset of technology did not go unnoticed by the media and politicians. Cheap cellphones were heralded as not only the tool of the masses in an ever more democratizing country, but the method by which economic disparities would be addressed (Srivastava, 2015; Agrawal, 2018). It was argued cheap cellphones would help correct asymmetries of information and promote freer and fairer markets (James, 2019). Cellphones may also open up access to educational resources that, by 2017, had already been developed on a relatively mature internet.

Key to understanding these aspirations and the breathlessness with which they were articulated is noting how cellphones in India were used. Cellphones were and are rarely used in their capacity as a one-to-one communication enabling technology. Rather, the proliferation of cellphones in India can be just as well understood as the proliferation of the internet. To an extent, these aspirational goals were not entirely

unfounded. State sponsored projects saw positive results, enabling rural farmers sell their produce at fair prices (Mittal and Mehar, 2012). Other programs hired women to teach other rural women how to use internet enabled cellphones to learn English, connect with distant family, or gain access to government services (Saathi, 2020). While the scope of these programs was modest, the influence they had on their targeted populations was anything but. Enabling rural populations to communicate near instantaneously with government officials and family members is as close to a revolutionary shift in the social structure as can be imagined in the modern age.

That cellphones formed the backbone of this informational revolution comes as little surprise given the global context of the early 2010s. Internet enabled sim-cards dropped dramatically in price around this time leading to the mass adoption of the technology not only in India but in many parts of the developing world (Petulla, 2013). India's enormous urban and increasingly middle-class population made it ripe for this leap.

Driven by India's three largest and private telecommunications corporations - Vodafone Idea, Reliance Jio, and Airtel India - the proliferation of the internet in India has been rapid. Whereas India claimed only 40,000 4g cellular towers in 2015, as of May 2019, it boasts nearly 250,000 with 450,000 total towers (Joshi, 2015; Rathee, 2018). However, drawbacks to the privately driven proliferation of the internet became obvious to regulators and politicians early on. One problem Vodafone, Jio, and Airtel had failed to address was the growing disparity between rural and urban connectivity. While major metropolitan areas including Mumbai, Delhi, Kolkata, and Bangalore proved to be highly connected places, boasting an average of 23% internet penetration in 2013, the next four most connected metropolitan areas claimed only 11% internet penetration with connectivity dropping fast from there (IAMAI, 2019).

This disparity was even more pronounced when comparing urban and rural areas.

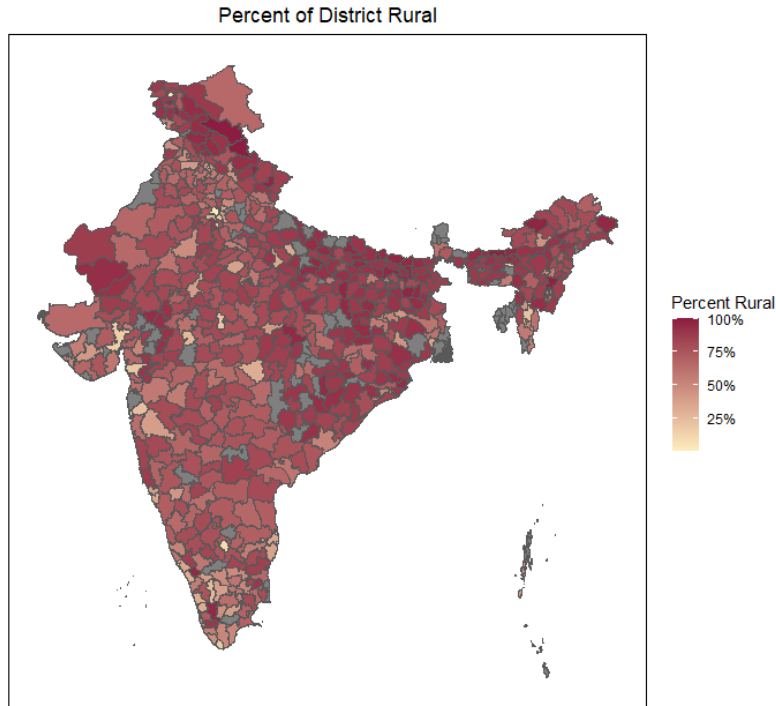


Figure 5.4: India Percent Rural

In 2015, 59% of urban Indians had ever accessed the internet while only 14% of rural Indians had. Metropolitan areas are easy markets for telecommunications companies. High population density makes it feasible to build an infrastructure that can provide the internet to millions of people at a time. Moreover, urban Indians tend to be wealthier than their rural counterparts which in turn makes them more likely to spend money on mobile data contracts.

From the perspective of the state, this proved to be a problem. India's untapped economic potential lies in its vast rural populations rather than its metropolitan ones; 65.97 percent of India's population lives in rural areas. Whereas the introduction of the internet served as an important innovation for city-dwellers, India's cities are, by comparison to the rest of the country, already well-resourced. By contrast, India's rural populations are persistently deprived. In 2011, only 21.9% of rural Indians had access to any type of latrines as compared to 73.7% of urban Indians, 59.5% owned

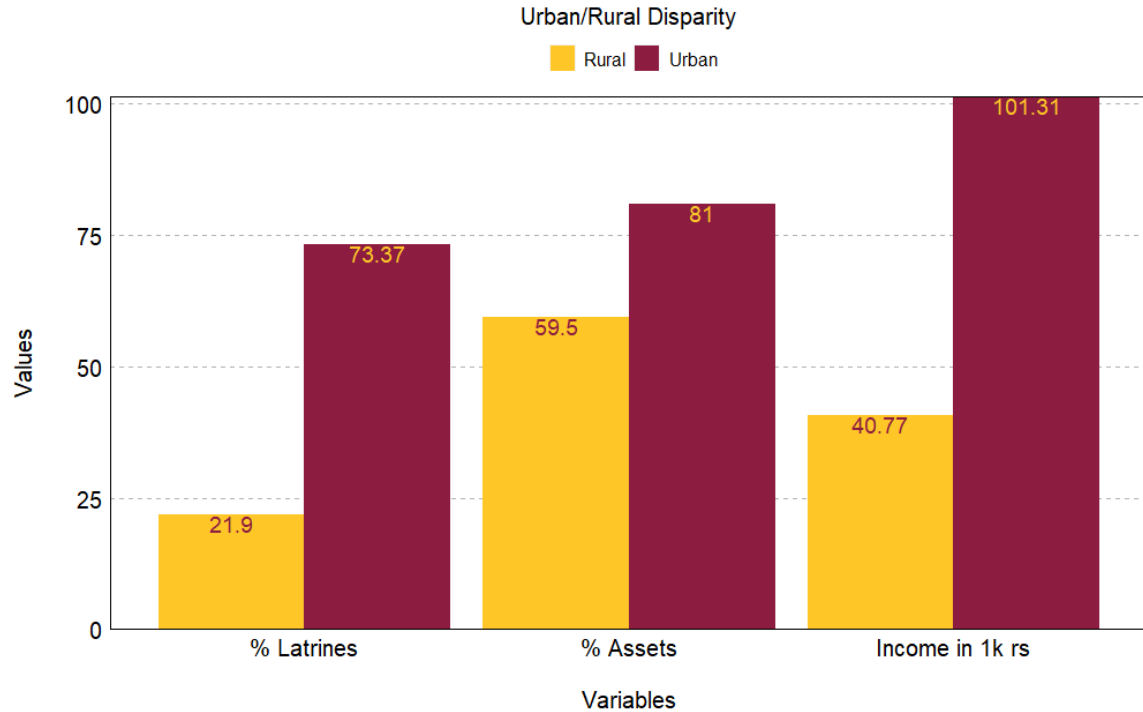


Figure 5.5: Urban Rural Disparity

any significant assets as compared to 81% of their urban counterparts, and India’s rural population claimed a per capita income of 40,772 rs (\$576.49 usd) as compared to 101,313 rs (\$1,432 usd) of their urban counterparts (India, 2011)³. Addressing these persistent inequalities would require tackling the problem of unequal internet proliferation; a task that was not going to be accomplished by market forces or the goodwill of Reliance, Vodafone, and Jio.

Developing a robust broadband internet infrastructure to reach India’s 900 million plus rural population was not an economically feasible endeavor for any of India’s private Internet Service Providers (ISP)(IIT, 2018). To do so would entail digging innumerable trenches, laying thousands of kilometers of copper wire, building hun-

³These statistics are taken from the 2011 Indian census. ‘significant assets’ coincides with the definition of poverty used later in this chapter referring to households which possess none of the following: radio, television, telephone, bicycle, scooter/moped, car.

dreds of relays, and providing last-mile connectivity. Setting up a cell-phone tower, by contrast, is a relatively inexpensive alternative. A tower is fairly self-sufficient, can be placed in such a manner that connectivity radiates to a large area, and, assuming that cellphones are inexpensive, can bring connectivity to broad swathes of people. Most importantly, cell towers do not necessitate last mile connectivity - wires do not need to be laid from a terminal to individual houses. This last facet remains a key limiting factor in delivering internet access to rural areas.

In addition to this problem, regulators and industry experts quickly recognized the limitations of a mobile data-centric infrastructure. While cellular towers are a cheaper alternative to building wired connections, they come with their own limitations.

First, towers need to be connected to a wider telecommunications infrastructure. In India's case, this infrastructure was built atop the country's (old) existing voice-enabling network. While this solution worked for a time, the exponential rate at which Indians began to consume mobile data in the mid 2010's stressed the infrastructure. Indians collectively used nearly 828 million Gigabytes of wireless data in 2014 and a staggering 46.4 billion in 2018 (TRAI, 2018). India's voice-enabling network was simply not built to handle the amount of data Indians were now demanding it deliver. Further, this infrastructure had, by the mid 2010's, aged considerably, leading to high maintenance costs. Extending this network exclusively through more mobile towers was quickly recognized as an infeasible long-term strategy.

Second, the dramatic increase in data-consumption began to pose problems. In comparison to wired connections and Wi-Fi, delivering data via mobile networks is expensive⁴. In countries with high absolute degrees of internet penetration, this

⁴Wired connections (including WiFi which rely on wired points of access) hold a cost and efficiency benefit from a provider's perspective over wireless data connections for a number of reasons. First, using frequency bands which wireless connections work through requires that companies pay licensing

has been recognized for some time and is the reason public Wi-Fi hotspots are so widespread. The adoption of data-intensive activities necessitates a robust wired infrastructure. While internet penetration in advanced, post-industrial countries was gradual enough to allow for a gentle transition from landlines to wireless data to some balance of the two; India's dramatic explosion of internet usage has put extra strain on the country's network. These two problems - an aging physical infrastructure and rapidly increasing data demands - set the stage for the introduction of Bharatnet.

Launched in 2011 under the liberal Singh government, Bharatnet - initially branded as the National Optic Fiber Network - is a state-sponsored project aimed at solving the aforementioned problems. Bharatnet infrastructure was planned to connect all 2.5 lakh (250,000) village blocks to a state-of-the-art, optical fiber internet infrastructure by the end of 2019 (BBNL, 2019b). Intensified under the Modi government, phase 1 of the project, completed in December of 2017, succeeded in deploying over 300,000 km of optical fiber to 13 States and Union Territories (PTI, 2014). Phase 2 of the project, tasked with connecting the remaining States and UTs with another 300,000 km of fiber, was set to be complete by December 2018 but has experienced delays (BusinessLite, 2019). As of June 2019, all but 50,000 gram panchayats have been nominally connected to the BharatNet infrastructure (Abbas, 2019).

Bharatnet's even distribution of a fiber network to urban and rural areas is worth noting. Thoroughly blanketing states with a robust fiber network, the Bharatnet project has been largely successful in developing and adhering to a non-discriminatory fees to the state for exclusive usage privileges. Moreover, copper cables and fiber cables which constitute the core of the world's wired infrastructure, are far better conductors of signals and can carry much higher bandwidth. Finally, the erection and maintenance of wireless towers, while relatively inexpensive, is still an absolute cost that must be paid; one that becomes extraneous in the presence of a robust wired network. Towers are far more exposed to the elements than buried wires are and are thus more prone to disruption and damage.

plan for infrastructure rollout⁵. While delays have plagued the project, the rhetoric concerning the project's rural focus is reflected in its infrastructure.

Few states demonstrate this evenness more clearly than Haryana. With over 25 million citizens and 44 thousand square kilometers, Haryana sits squarely in the middle of India's states and territories with regards to population and size. Moreover, the rural urban divide in Haryana - 65% rural and 35% urban - is strikingly close to India's overall average of 68% rural and 32% urban (India, 2011). It serves as an excellent illustrative example and microcosm of India's Bharatnet rollout. Boasting an extensive network of over 11,005 km of optical fiber, the state was fully connected to the Bharatnet network in Phase 1, completed in December of 2017 (News, 2018).

Particularly striking about Haryana is the extent to which connectivity spans to rural areas. End nodes per thousand people are roughly equivalent between rural and urban Districts, development of the network happened nearly simultaneously across the State, and no GP is more than 50 km from the nearest endpoint - well within a reasonable distance for last-mile service. Likewise, proliferation of the Bharatnet network across India has been similarly balanced. While the sheer size of the program required it to be split into two phases, states chosen to be in one phase or the other do not differ significantly in their percent of rurality, wealth, population density, or other characteristics. By most accounts, the Bharatnet infrastructure has been successfully developed in accordance to its stated goals of equity between rural and urban areas.

This equitable development is particularly notable given the Modi government's penchant for leveraging state authority for partisan ends. Indeed the Minister for Electronics and Information Technology and Communication, Ravi Shankar Prasad,

⁵It should be noted that 'non-discriminatory' is a term specifically used by the Bharatnet program to describe its efforts vis-a-vis the urban/rural divide. Where possible, this study adopts such language in an effort to consistently reference the programs discussed.

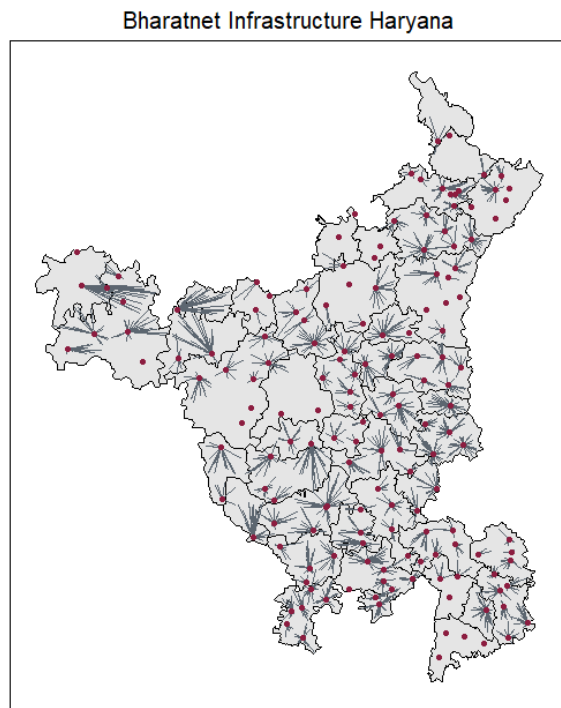


Figure 5.6: Bharatnet Infrastructure in Haryana

who heads the program, is a Modi appointee. Prasad has regularly and vehemently advanced the agenda of the Bharatiya Janata Party. Indeed, knowing these facts alone, we would expect to see Bharatnet develop first and foremost in areas which consistently vote BJP. Bharatnet is one of the largest programs undertaken by the Modi government and an attractive way for patrons to reward clients. Surprisingly, this has not been the case. Bharatnet development in Andhra Pradesh and Jammu Kashmir, states represented overwhelmingly by non-BJP parties (YSR Congress and Jammu Kashmir parties respectively), has proceeded on schedule during the first portion of Bharatnet development. Indeed, despite sending YSR Congress delegates to the Lok Sabha (lower house), Bharatnet development *began* in Andhra Pradesh. This, it should be noted, happened after the BJP took power in 2014 when it would have been well within Modi's power to re-route funding to other, more loyal states.

Despite the seemingly strong incentive to guide Bharatnet development accord-

ing to partisan goals, the project has progressed, faithfully adhering to its original, nondiscriminatory aims. In a country where ethnically driven party politics defines much of life, internet access is a valence issue and Bharatnet has been developed, seemingly, for all Indians. Bharatnet can hardly be called an efficient or punctual project, as is explored next, but few would contest that it has remained above the partisan fray. In part, this is due to the nature of the project itself and its targeted population. Bharatnet is underground infrastructure. Little of its development bares recognizable benefits to the average citizen. As such, efforts to politicize the project are of dubious value. The political capital gained by doing so is negligible while the risks associated with being the sole party tied to an inefficient program are high.

While the development of the Bharatnet infrastructure is impressive for the reasons explored above, several factors qualify its success. First, rollout of the program has been plagued with frequent delays. While the undertaking is only now finishing its original goals of a country-wide fiber network, these goals were initially set to be complete by 2015. Indeed, Bharatnet - at the time, National Optical Fiber Network - was an undertaking originally planned by PM Manmohan Singh's government in 2010 and first rolled out in 2011. Even after the BJP government's rebranding and commitment of additional funds in 2014, the program has been regularly delayed. Budget shortcomings have also been a regular feature of the program. While the original program was set to cost 20,000 crore rs (\$3 billion usd), the final cost for the project has come out to nearly 42,068 crore rs (\$6.32 billion usd) (PTI, 2019; BBNL, 2019b). Additionally, public knowledge concerning the Bharatnet program has been fairly low with most citizens being unaware that their villages are nominally connected to a wider internet infrastructure.

While a robust fiber-optic network now crisscrosses the country, relatively few villages have been able to benefit from this infrastructure. In large part, this is

due to the near complete disregard for adequately planning last-mile connectivity. Until recently, Bharatnet relied on market forces and private ISPs to provide last mile connectivity from Bharatnet endpoints to villages (Kala, 2018). Metaphorically speaking, Bharatnet built the main thoroughfare but required that neighborhoods either build their own arterial roads or find private companies willing to do the task. While the existence of a broad fiber-optic network is impressive in a decontextualized sense, it is but useless insofar as the actual delivery of services is concerned.

Unsurprisingly, this reliance on market forces to deliver internet access perpetuated the rural/urban divide. Last-mile connectivity costs are high and rural populations are rarely wealthy enough to make recuperating these costs likely. Moreover, having built the network, the Indian Federal government charged the states with maintaining and completing it; a task that was taken up with varying degrees of success.

Further, use of the infrastructure by ISPs was limited. The Bharatnet infrastructure is fiber-optic in nature while private ISPs had spent nearly a decade working with a copper-wire based infrastructure. While these ISPs are now slowly making the transition, utilization of the Bharatnet network has been low and indeed, has prompted the central government to consider selling off portions of its networks to the ISPs themselves who will presumably do a better job of maintaining it.

The result of this poor planning is a state-of-the-art infrastructure that few benefit from and which nearly instantly became a liability for any party interested in using it. Regular press releases from Modi's BJP government touting how many hundreds of thousands of villages have now been 'connected' to the Bharatnet mislead (BBNL, 2019a). Without last mile connectivity, fiber may run under villages but little comes of it. Bharatnet, and the state-owned company that runs it, captures only 10% of the data market years after broad proliferation has occurred (TRAI, 2018).

While these weaknesses have crippled the effectiveness of Bharatnet, recent efforts are worth consideration. The Wi-Fi Choupal program has attempted to deliver internet access to rural areas by utilizing the Bharatnet network. The effectiveness of this program and its attending services are worth consideration as I argue they explain why internet proliferation is negatively associated with spontaneous ethnic conflict in the Indian context. These programs represent a shift in policymakers' perspectives on how to understand the proliferation of the internet. By moving from a 'build it and they will come' mentality to one that recognizes the necessity of training and other services, lawmakers and bureaucrats have expressed an evolving approach to the proliferation of the internet.

5.3 Wi-Fi Choupal, Digigaon, and CSC's

The defining flaw of the Bharatnet program is its failure to provide last-mile connectivity. The Wi-Fi Choupal and Digigaon programs were launched to address this weakness. By empowering and subsidizing village level entrepreneurs, the Wi-Fi Choupal program builds on the Bharatnet network to deliver internet accessibility at highly subsidized costs and a small selection of government services (Choupal, 2019b). By all accounts the proliferation of Wi-Fi Choupal hotspots has been remarkably even; hotspots and their attending service centers have sprung up in rural and urban areas alike.

Further, the distribution of Choupal hotspots appears to be independent of ethnic majority/minority demographic characteristics. While private endeavors generally reproduce existing social and economic cleavages, the Wi-Fi Choupal program appears not to suffer from these dynamics. Rather, the prevalence of Choupal hotspots is far more closely related to a state's population than the percent of its population which is Muslim. Larger states have more Choupal hotspots, smaller states have fewer. Of

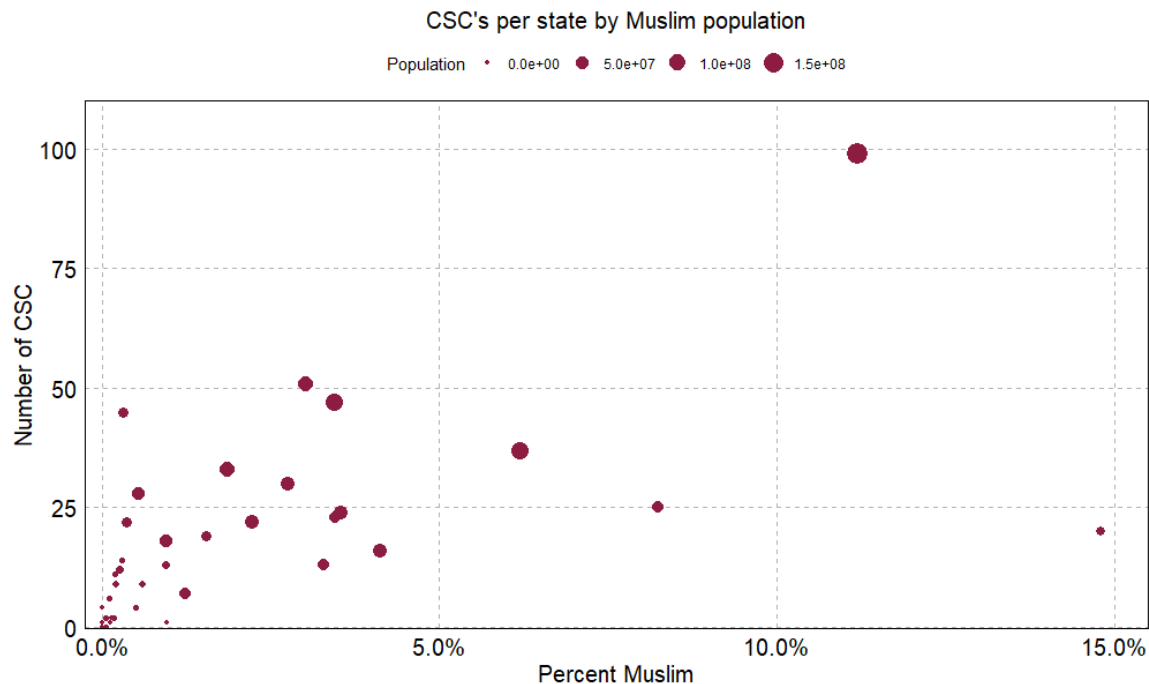


Figure 5.7: Common Service Centers by Population and Percent Muslim

course, the relationship between these three variables is multi-dimensional. Larger states are also more likely to have higher Muslim populations as the cities that drive up their population tend to be more diverse than rural areas. Even so, while economic and social disparities between the majority Hindu and minority Muslim populations are apparent in numerous aspects of Indian life, the Wi-Fi Choupal program appears to have successfully sidestepped them.

Several factors have made the broad uptake of Wi-Fi Choupals possible. Choupal hotspots have broad coverage and can be accessed at highly subsidized rates. More importantly, Wi-Fi Choupal hotspots emanate from Common Service Centers - villager owned and state-subsidized businesses that act not only as points of internet access, but as a resource for villagers to acquire education and government assistance.

Choupal hotspots have experienced high rates of uptake in rural villages as well. Wi-Fi emanating from Choupal hotspots cover entire village blocks with high-speed,

reliable internet. In villages where private ISPs do not extend service, they represent the sole point of access to the internet and a fairly decent one at that. Even in villages that are serviced by private ISPs, Choupal hotspots are often faster, cheaper, or more reliable; sometimes all three.

The use of Choupal hotspots is also highly subsidized. At 25 rs (\$0.35 usd) per 5 gigabytes of data, Choupal data plans are exceedingly affordable, even in rural areas where the average yearly income is 40,772 rs. For the sake of context, 5 gigabytes is roughly equivalent to 50 hours of music streaming. This data goes even further for villagers who are only just becoming computer literate as these populations are far more likely to use other, less data intensive applications such as WhatsApp.

However, the more compelling reason to use Choupal hotspots is the Common Service Centers. While Common Service Centers have proliferated throughout the country by the thousands (Choupal, 2019a), recent efforts to expand the services they offer are particularly notable. Run by locals and subsidized by the federal government, Common Service Centers once served primarily as communal internet cafes. Though the rise of internet enabled cellphones, obviated the need for such institutions, Common Service Centers are now far more valuable as sites offering educational resources, access to state welfare programs, digital literacy courses, and public Wi-Fi. Common Service Centers can help us understand why internet proliferation in India has led to less spontaneous ethnic conflict rather than more.

First, CSCs are visible emanations of the state and act as many Indians' first introduction to the internet. CSC's offer Wi-Fi through the state-owned Bharatnet network, their owners are paid for selling state-subsidized and serviced data plans, training to open a CSC is provided by the federal and/or state government, and CSC owners are regularly the foremost experts in government services at the village level. Little of what happens at a CSC is untouched by the state. More importantly,

villagers *know* that CSCs act as de-facto offices for government services and have fairly positive views of the centers.

The Digigaon program, piloted in 2017 and fully implemented in early 2018, provides extra state funding to CSCs to offer expanded educational, hygiene, telemedicine, entrepreneurial, banking, and government pension services. The latter two resources rank highly among these services as those most capitalized upon by villagers (Jha, 2019). Telemedicine and other services are also non-trivial given that villages can be hundreds of kilometers from the nearest hospital (India, 2018). There are currently over 700 Digigaons, each of which represents a concerted effort by the central government to invest in rural internet and provide services through that connectivity (DigiGaon, 2020). Unlike the Bharatnet and other connectivity programs, the Digigaon program has been successful in achieving actual connectivity and, more importantly, making citizens aware of the benefits such connectivity provides.

Unlike the Bharatnet program, the opening of CSCs, especially Digigaon CSCs has been fairly well marketed by the Indian government. Led by Prasad, the induction of Digigaon CSCs is often attended by high ranking ministry officials or Prasad himself. Innumerable Twitter posts, Facebook events, and videos concerning the opening of Digigaon CSCs supports the idea of the Digigaon CSC as communally recognized, state-sponsored activity. Videos show the minister conversing with Village Level Entrepreneurs (CSC owners) or addressing large crowds; a notable feat when many villages which receive CSCs have only a few hundred residents. Moreover, the expansion of CSCs via the Digigaon program has received overwhelmingly positive press coverage. In contrast to the Bharatnet program, the Digigaon initiative has been widely hailed as a success story.

Digigaon CSCs represent state projects that are clearly understood and experienced by villagers as such. Contrary to the Bharatnet program which is not expe-

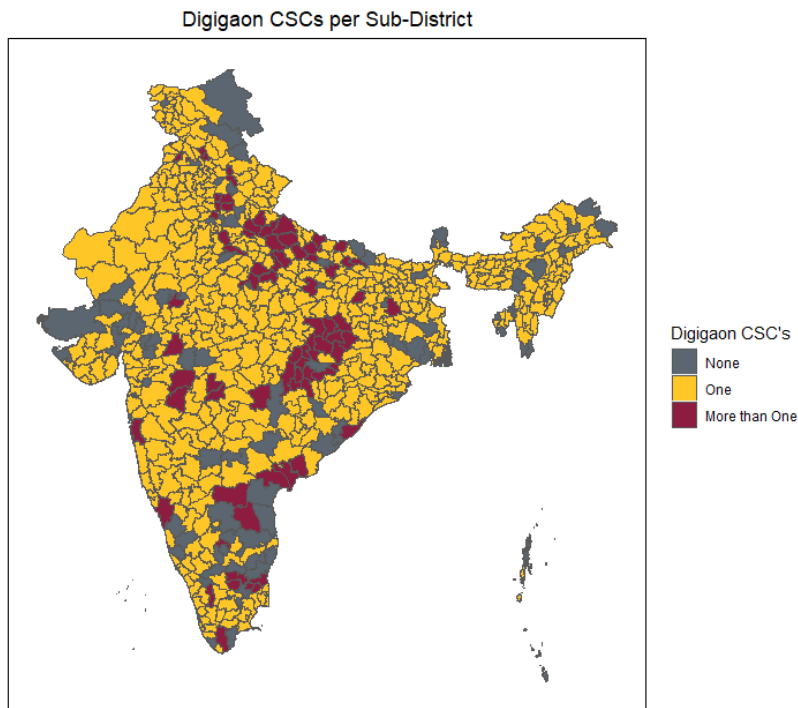


Figure 5.8: Digigaon CSCs by Sub-district Map

rienced directly by villagers, Digigaon CSCs are branded clearly with the Federal Government's image and provide services that villagers innately understand are extensions of the Indian state.

Digigaon CSCs are also notable to the extent that they have, like Bharatnet, escaped overt politicization. The opening of new Digigaon CSCs are regularly attended by Prasad and other high level ministers. However, these events rarely inspire attending BJP apparthiks to expound on the virtues of 'Hindutva', Hindu nationalism, as similar development programs often do. Rather, local and state ministers mark the occasions with speeches concerning the virtue of sanitation, inter-communal cooperation, and economic development.

More interestingly, these events are attended by local politicians of all parties and are notable as inter-communal events. Local politicians would ostensibly benefit from politicizing the delivery of state services but there is little evidence to suggest

that this is happening on any meaningful scale. The local-state level administration of Digigaon CSCs may go some way to explaining this finding. Digigaon CSCs are owned and operated by Village Level Entrepreneurs (VLEs) who are funded by the state and sub-national unit of governance as well as making money through their own delivery of e-services. This arrangement guarantees that VLEs have a financial incentive (and the connections) to service entire communities while being independent from local patrons.

This is not to say that party politics play (?) role in the development of Digigaon CSCs nor does it suggest that ministers including Prasad don't take every opportunity to tout their success as a success of the BJP government. VLEs tend to be prior entrepreneurs who undoubtedly have ties to local patrons and the word of those patrons can go some way in guaranteeing a Digigaon CSC. Rather, it is to note that once these CSCs are operational, selectively restricting access to the services their offer is a prospect that poses little utility. This is largely due to the types of services CSCs offer.

CSC's offer assistance otherwise unavailable to villagers and connect them to a larger ecosystem of welfare programs using internet connectivity. One such program is the assistance Digigaon CSCs offer in attaining Aadhaar - national identification - cards. These cards grant citizens easy access to programs including direct transfer benefits such as unemployment welfare, digital banking, and other benefits such as access to state-subsidized fuels and pensions. Moreover, Digigaon CSC's offer services critical to improving life in rural India including hygiene and telemedicine services. Digigaon CSCs also work to improve the material conditions of village life. CSCs offer numerous resources for rural farmers and entrepreneurs including agriculture training, entrepreneurship assistance, and market/weather reporting that facilitates agriculture and entrepreneurship.

Digigaon CSCs are very often the first exposure to the internet villagers will have. Rural Indians circa 2017 did not have a wealth of experience browsing the internet. Their introduction to and use of the internet is significantly different from those who were initially exposed to the technology outside the context of state welfare. Digigaon CSC's provide not only tools, but education on how to use those tools and the non-violent ends to which they might be leveraged. Initial exposure to the internet via Digigaon CSCs is fundamentally tied to the services associated with the institutions. The internet, for broad swathes of the Indian population, is not a tool that is primarily used to access Facebook or consort with co-ethnics. It is a tool that provides access to resources that have dramatically improved their quality of life. That they do so via the internet reframes the proliferation of the technology in a way that has lasting repercussions.

When proliferated by a private entity, internet use needs to be incentivized by promoting the use of social media platforms. Twitter, Instagram, TikTok, and especially Facebook are powerful incentives to drive internet adoption used by private corporations in the developing world. It is no surprise that roughly 95% of internet traffic in Myanmar, for example, flows through Facebook. By contrast, when proliferated via the state or state-sponsored project, internet usage can be incentivized through access to necessary resources. Doing so undercuts the medium's main benefit in providing a platform through which ethnic violence can be performed. When use of the internet is (?) characterized by the intensification of pre-existing ethnic ties and not characterized by high rates of content consumption, the audience necessary to validate performances of ethnic violence are not materialized. Performances of spontaneous ethnic violence are rendered irrelevant in the absence of an audience.

CSCs also inhibit the use of the internet as a medium for performative violence because they are inextricably tied to the communities they service and act as a quasi-

civic-institution. CSCs are villager led; they are owned and operated by entrepreneurs from the villages they want to service. To open a CSC requires that an interested Village Level Entrepreneur (VLE) submit proof of residence and ties to a specific community. While not perfect tests for making sure village-level entrepreneurs have meaningful ties in a given village, this requirement has largely kept CSCs from being dominated by large corporations. Instead, CSCs are owned by individual or groups of villagers.

Because of this, CSCs have had far more success in introducing the internet and its accompanying technologies to the villages they serve. The opening of a CSC represents not only the culmination of one individual villager's hard work but the aspirations of a village that has been involved in the process of opening up the CSC. Digigaon CSCs build on this network of communal ties to deliver a wide range of educational and other state-subsidized resource directly to those in need of such aid. That the Digigaon program has been successful in inadvertently reducing ethnic riots is almost entirely attributable to this fact; CSCs operate as integrated parts of existing villages. These characteristics of CSCs - their local nature, the services they provide, their role in first exposure to the internet - help make them pacifying institutions vis-a-vis spontaneous ethnic conflict.

5.4 Data and Methods

5.4.1 Hypotheses

These observations suggest important hypotheses. First, it suggests that:

H1: Internet proliferation will decrease the likelihood of spontaneous ethnic conflict when paired with robust state intervention

Introducing the medium to new users in the context of welfare access, state-

intervention, and community success reframes the technology. By contextualizing the technology as an access point to material resources rather than a forum through which communal ties are defined, Digigaon CSCs diminish the likelihood of spontaneous ethnic conflict.

In this context, the internet becomes a tool not primarily used for the sharing of grievances among peers but as a channel through which the individual is connected to welfare programs, state-sponsored education, and by extension, news of a robust and involved state. Internet proliferation outside the context of state intervention may increase the likelihood of ethnic conflict because it exacerbates the structural characteristics of the medium that facilitate the performance of ethnic identity formation. Private proliferation of the internet facilitates ties between already existing and highly motivated groups which are quite often those that have a propensity for spontaneous ethnic conflict.

Another hypothesis concerns the strength of this effect in rural areas. A key difficulty in studying modern ICTs is the disparity between rural and urban usage. The market rarely prioritizes rural connectivity for the reasons explored previously. As such, even in situations where connectivity does extend to rural areas, its effect on the likelihood of ethnic conflict can be muted. The Bharatnet and Wi-Fi Choupal programs provide a unique opportunity to observe these dynamics. The specifics of the Indian case suggest the following:

H2: In rural environments, state-sponsored internet proliferation will see an intensified reduction in the likelihood of ethnic conflict

5.4.2 Data

Dependent Variable

To measure incidence of ethnic conflict, I rely on the ACLED dataset (ACLED, 2018). The ACLED dataset catalogues conflict events with information on time and geolocation. Given that I want to test how the likelihood of ethnic conflict changes over time, I subset conflict events by year spanning from 2016 - 2019. This time period captures two years prior to proliferation of the Digigaon initiative and two years during. Following this, I exclude all events other than riots motivated by ethnic animus.

Reporting on incidents in the ACLED dataset requires that 2 independent and reputable journalist sources confirm an event. By filtering on descriptions that include the words ‘ethnic’, ‘religious’, ‘caste’, or ‘minority’, I construct a list of unorganized incidents of ethnic conflict that occurred in India between 2016 and 2019.

Riots not included in this list generally concern student protests and farmer riots; both of which fall outside of the purview of this study. As a robustness check, and to ensure that the events considered match with the theoretical definition used here, I manually scanned the newspaper articles scraped by the ACLED. With few exceptions, the vast majority of events captured through the filtering process align with the theoretical definition. A handful of events were manually removed from the dataset which were not caught by the filter. These events were uniformly student riots which, while undertaken by youth in the BJP (or other, regional ethnic parties) noted state forces as receiving actors. These events were removed given that anti-state activities do not fall under the purview of this study.

I then aggregate these incidents by Indian subdistrict as this is the lowest level of aggregation for which data concerning intervening variables can be collected. More-

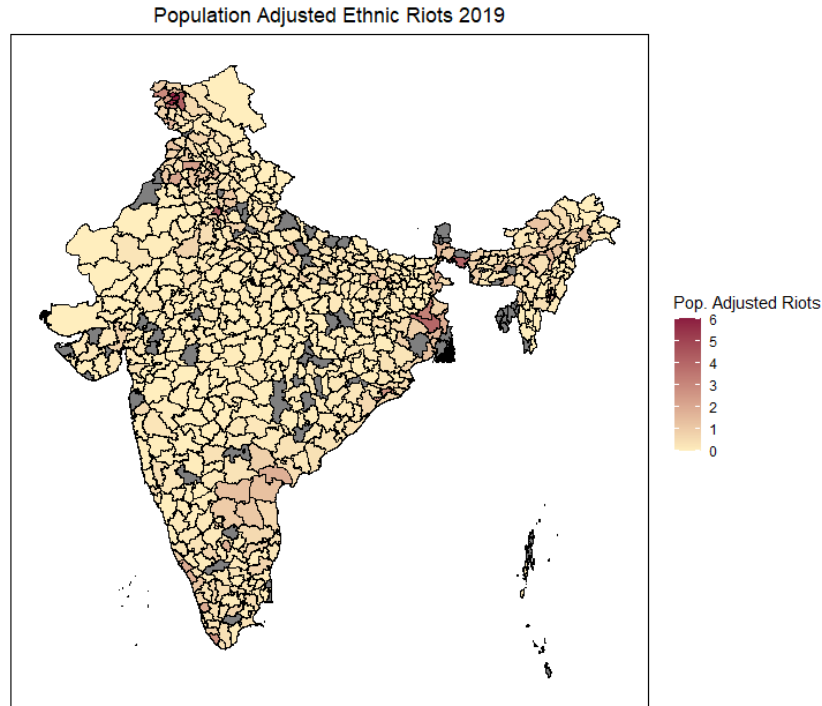


Figure 5.9: Population Adjusted Ethnic Riots, 2019

over, this is an appropriate level of analysis given that the theoretical focus is on communities and sub-districts are the coarsest level at which a cohesive community can be said to exist. These efforts result in a count variable measuring the number of ethnic riots occurring in a given sub-district in a given year.

Independent Variables

To construct my primary explanatory variable, I gathered data on the Wi-Fi Choupal program, specifically, which CSCs operated under the DigiGaon initiative (DigiGaon, 2020). These specific CSCs offer a wide range of state services and represent the robust state involvement and contextualization explored previously. Using data provided by the DigiGaon initiative, I manually matched each of the DigiGaon CSCs to the sub-district they serve. Sub-districts that contain a DigiGaon CSC and those that do not are fairly evenly distributed. Sub-districts that do have a DigiGaon CSC generally

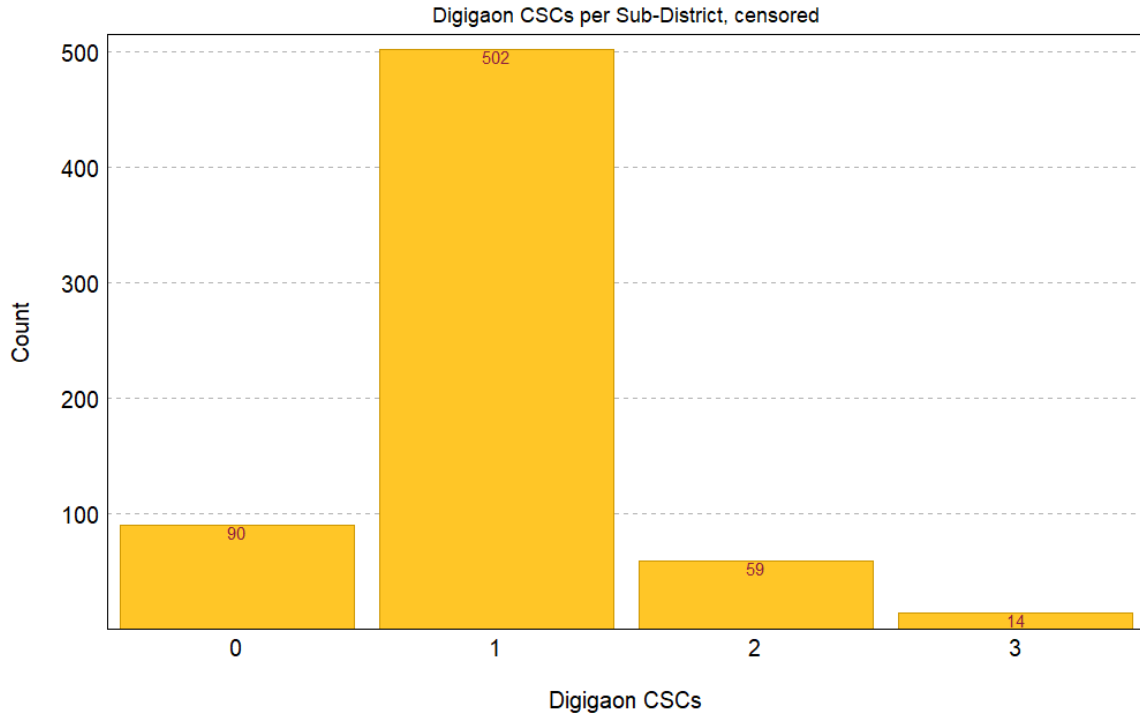


Figure 5.10: Digigaon CSCs per Sub-district Histogram

contain only one while a handful contain more.

I construct a count variable counting the number of Digigaon CSCs in a given sub-district. This variable is not disaggregated by year for reasons that will be explored in the following section. Moreover, nearly all Digigaon CSCs were established in early 2018.

I also control for a number of other factors. Numerous variables are common to the literature on ethnic conflict and have robust theorization backing their inclusion. For the purpose of addressing alternative explanations, these are the general independent variables included in the tests shown here. The following variables are measured at the sub-district level and were collected from the 2011 Indian Census (India, 2011).

Given that highly populated areas are more likely to see an absolute number of incidents than sparsely populated areas, I control for population. Moreover, given that there is a wide disparity in population across sub-districts I log this variable.

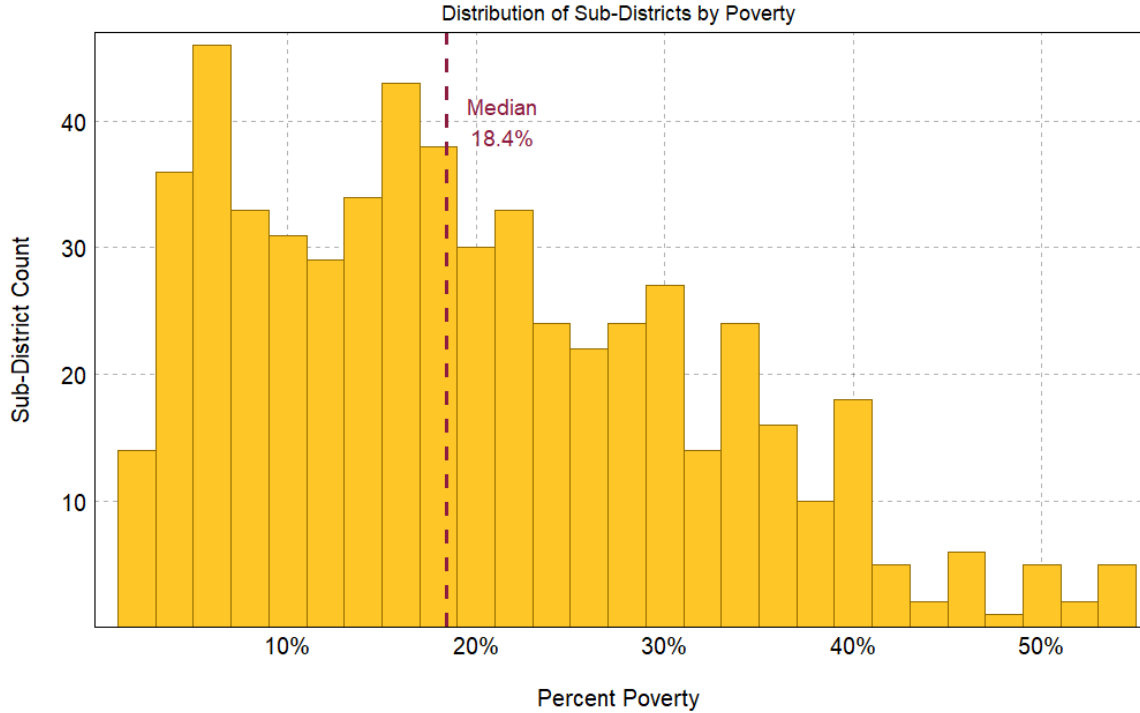


Figure 5.11: Sub-districts Poverty Histogram

Next, a significant amount of literature has noted that great distances make collective action difficult. To that end, I take the log of the sub-district’s area. I also control for the percent of a sub-district’s population that lives in rural areas. Next, a wealth of literature has noted that certain demographic characteristics increase the likelihood that an individual will participate in ethnic conflict events. Among these are age and gender; I control for percent male population and percent of population under 30 in a given sub-district.

Additionally, I control for the percent of households that are electrified in a given sub-district. Without doing so, measuring rates of internet penetration and the number of CSCs might capture underlying rates of electrification. To make sure this isn’t the case, I control for this variable. Moreover, I control for the proliferation of cell-phones in a given sub-district. A robust body of literature has shown that the proliferation of cellphones makes the likelihood of organized ethnic conflict more

likely. While these cellphones do allow access to the internet, the purpose of this case study is to examine the effect of mass proliferation in the context of state intervention. Controlling for the prevalence of cellphones helps to disaggregate rates of cellphone ownership from internet education and usage. Each of these variables is also constructed using data from the 2011 Indian Census.

Beyond these variables are controls that are specific to the Indian case. Given that the overwhelming majority of ethnic conflict occurring in the country happens between the Hindu majority and Muslim minority, I measure the percent of the sub-district's population counted as Muslim. Moreover, as noted by numerous recent scholarly pieces and journalistic institutions, India has become the world's leader in voluntary internet shutdowns. The Indian government is highly likely to shut down the internet when news of large-scale conflict incidents are imminent or have just occurred. Moreover, internet shutdowns are often used as a tool for combatting cheating in state-proctored exams including tests for teaching and medical certification. Unsurprisingly, these shutdowns are not evenly distributed across districts. To control for this variation, I include the number of shutdowns each sub-district experienced (sflc, 2020).

5.5 Model and Results

The primary goal of the models employed is to ascertain whether Digigaon CSCs have an effect on the likelihood of ethnic conflict. To test this, I construct count models for each year between 2016 and 2019. My primary independent variable - number of Digigaon CSCs in a given sub-district - is included in each of these models. While these CSCs would not have been active in years 2016 and 2017, including the variable can help me test whether my results are driven by the actual presence of these CSCs or whether other underlying characteristics of the sub-districts are driving my

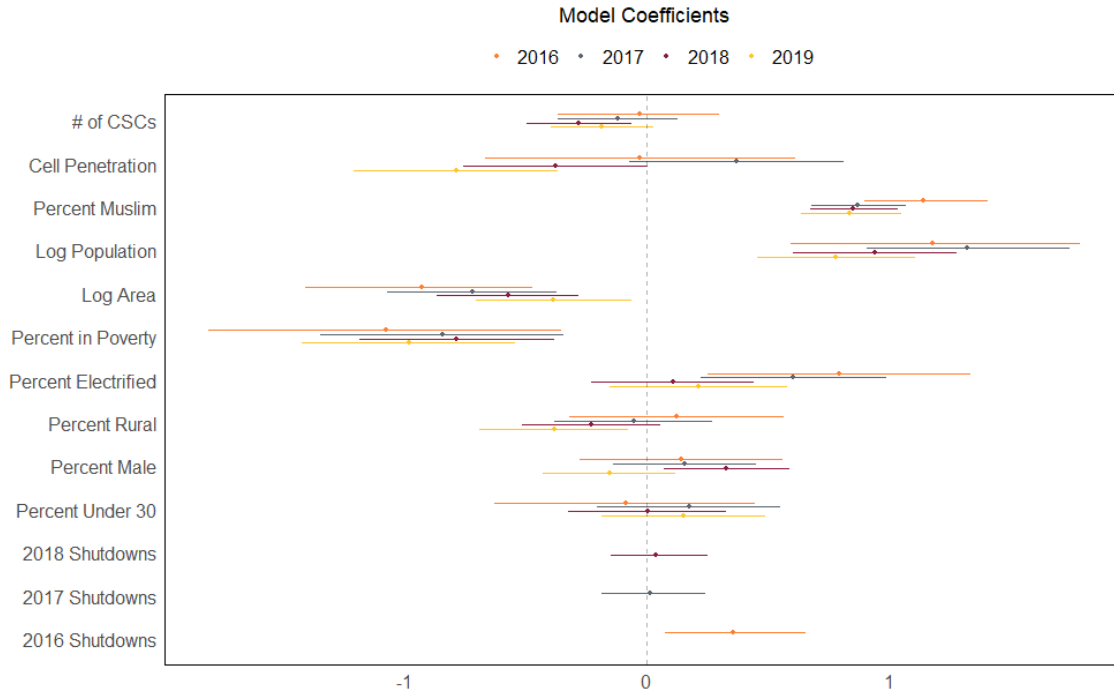


Figure 5.12: Model Coefficients

results. Moreover, constructing four independent models helps to address issues of temporal auto-correlation without having to resort to convoluted model controls that make interpretation difficult. Ideally, coefficients for the independent variable should not be significant in 2016 and 2017 but should be significant and negatively signed in 2018 and 2019.

Given that my dependent variable is a count variable and that it exhibits characteristics of over-dispersion, I employ negative binomial models. Further, given that India is a federal state with significant authority devolved to sub-national units of governance, I cluster standard errors on state/union territories. This should further help to control for inter-district propensity for ethnic conflict; Jammu Kashmir and Punjab, for instance, are notable for their elevated levels of ethnic riots. Clustered Standard Errors should help make sure that my results are not solely driven by these states. Results from my models are shown below.

<i>Dependent variable: Riots</i>				
	2016	2017	2018	2019
	(1)	(2)	(3)	(4)
Choupal	-0.026 (0.128)	-0.099 (0.093)	-0.230*** (0.086)	-0.154* (0.090)
Mobile Penetration	-0.001 (0.011)	0.013* (0.007)	-0.013** (0.006)	-0.027*** (0.007)
Percent Muslim	3.180*** (0.403)	2.418*** (0.310)	2.370*** (0.287)	2.328*** (0.312)
log Population	0.566*** (0.133)	0.634*** (0.094)	0.451*** (0.075)	0.375*** (0.078)
log Area	-0.499*** (0.122)	-0.387*** (0.088)	-0.309*** (0.074)	-0.207*** (0.080)
Percent in Poverty	-0.041*** (0.014)	-0.032*** (0.009)	-0.030*** (0.008)	-0.038*** (0.008)
Percent Electrified	0.014*** (0.005)	0.011*** (0.003)	0.002 (0.003)	0.004 (0.003)
Percent Rural	0.311 (0.551)	-0.133 (0.405)	-0.578 (0.361)	-0.965** (0.391)
Percent Male	4.370 (5.841)	4.812 (4.263)	10.098*** (3.692)	-4.727 (4.053)
Percent Under 30	-1.192 (3.556)	2.376 (2.537)	0.026 (2.185)	2.042 (2.335)
Shutdowns 2016	0.638*** (0.236)			
Shutdowns 2017		0.009 (0.076)		
Shutdowns 2018			0.033 (0.086)	
Constant	-6.978** (3.120)	-9.752*** (2.321)	-6.441*** (2.042)	1.651 (2.212)
Observations	584	584	584	584
Log Likelihood	-631.234	-1,063.957	-1,329.583	-1,439.961
θ	0.633*** (0.091)	0.910*** (0.089)	0.988*** (0.083)	0.743*** (0.058)
Akaike Inf. Crit.	1,286.468	2,151.914	2,683.166	2,901.923

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 5.1: Model Results

Before examining the significance of my primary independent variable, it's worth briefly discussing control variables. As expected, many return coefficients that agree with our theoretical expectations. A higher percentage of Muslims makes ethnic conflict more likely, as does increased population. By contrast, increased area and poverty make ethnic conflict less likely. These results are robust across time and highly statistically significant. Other variables are less consistent over time but similarly conform to theoretical expectations. While not statistically significant, the percentage of population under 30 is signed correctly in the positive direction as is percent rural and with the exception of 2019, percent male is also signed positively.

Contrary to expectations, however, cellphone penetration is signed negatively in 2018 and 2019 but positively in 2017. In part, this may reflect the larger effect Digigaon CSCs have on the internet usage and contextualization. Digigaon CSCs provide numerous services that can be accessed through smartphones. The change in sign and continuing statistical significance in years CSCs are operational may indicate that these institutions have an influence that reaches beyond the immediate services offered.

The primary independent variable of interest, Digigaon CSCs per sub-district, matches up to theoretical expectations. The coefficient is signed in the negative and is statistically significant in 2018 and 2019. Moreover, the variable is not statistically significant in 2016 and 2017, suggesting that results aren't being driven by underlying characteristics of the districts and instead are reflecting actual pacifying effects of the CSCs themselves. While significance drops off in 2019, the effect is still signed negatively albeit with a lower substantive effect. This drop-off suggests that the contextualizing effect of CSCs diminishes over time.

Evidence for this interpretation is suggested by examining the effect additional Digigaon CSCs have on a given sub-district.

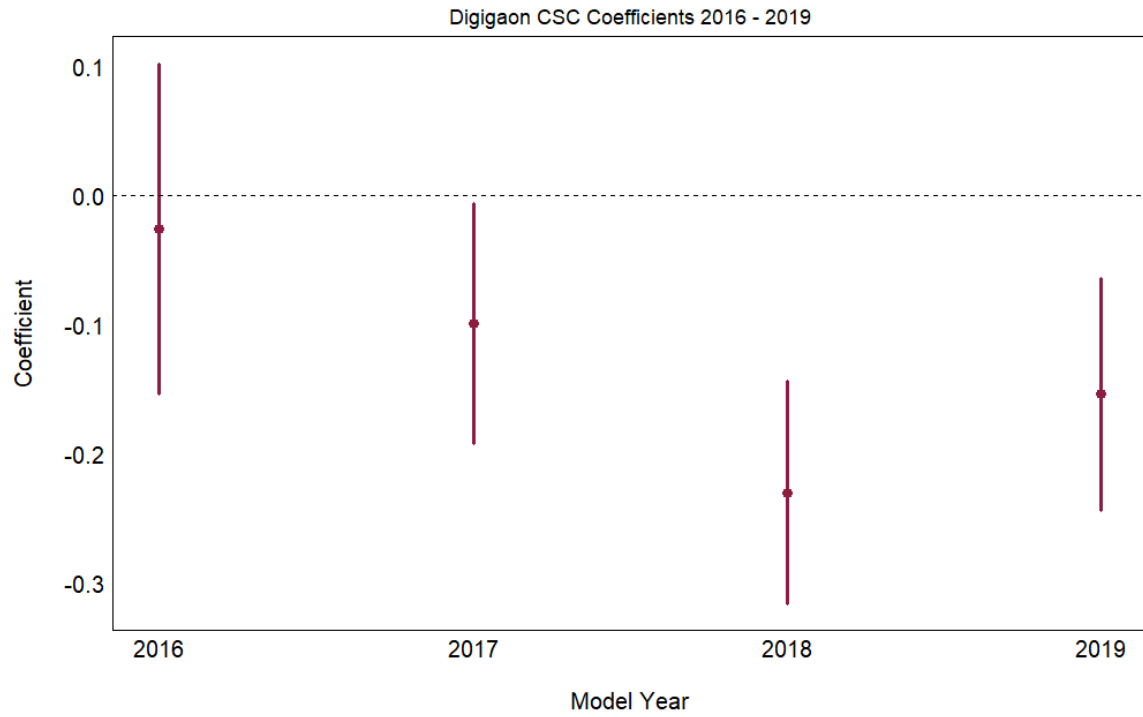


Figure 5.13: Digigaon CSC Coefficients

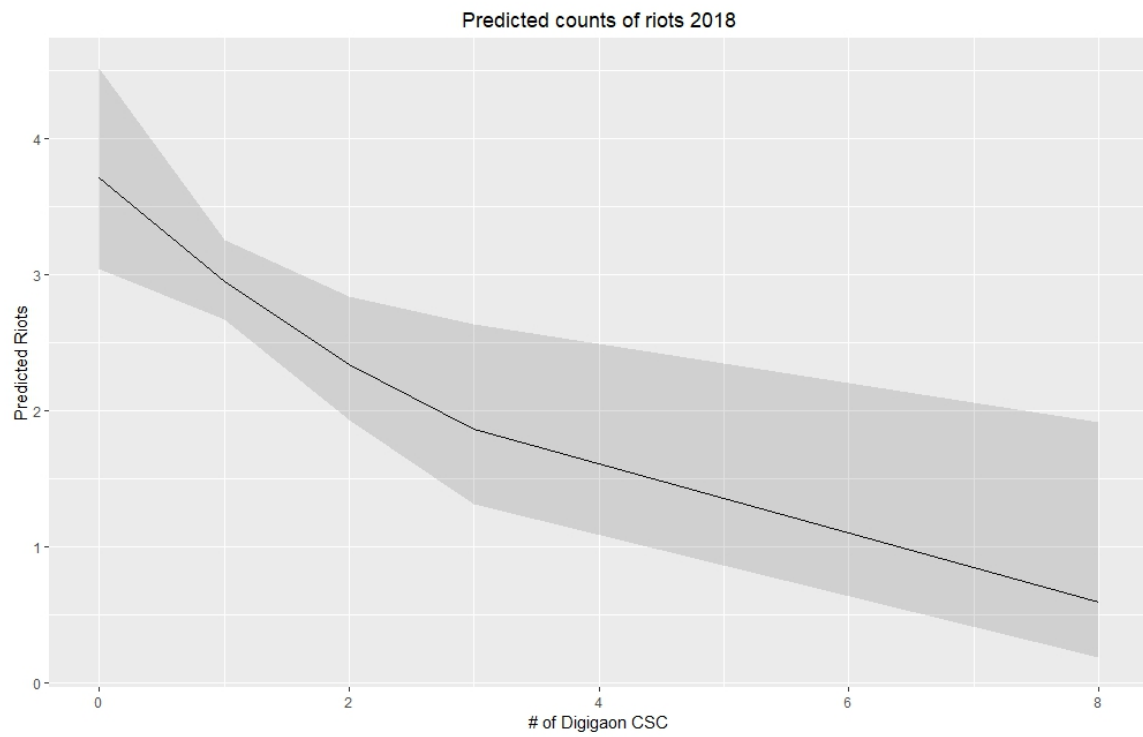


Figure 5.14: CSC Marginal Effects

The vast majority of the effect observed is being driven by sub-districts that have one CSC as opposed to none. Sub-districts with greater numbers of CSCs see diminishing returns on the reduced likelihood of ethnic conflict with each additional CSC. Interestingly, this dynamic seems to be intensified for wealthier districts. While we would expect these districts to benefit the least from additional state investment, these subdistricts are most prone to riots given their abundance of resources. Still, districts with less than 8% poverty constitute only 16% of the total observations. The vast majority of districts, and those which contribute the most in an absolute sense to the count of riots see the most benefit from gaining one Digigaon CSC and only marginal benefits thereafter with the effect nearly completely dropping off after the third.

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One concern may be that the opening of Digigaon CSCs coincides with a natural reduction in ethnic riots over time. In this accounting, as districts become less violent, the state may feel emboldened to invest in a sub-district given that the likelihood of conflict which destroys the CSC seems to be going down. For two reasons - both

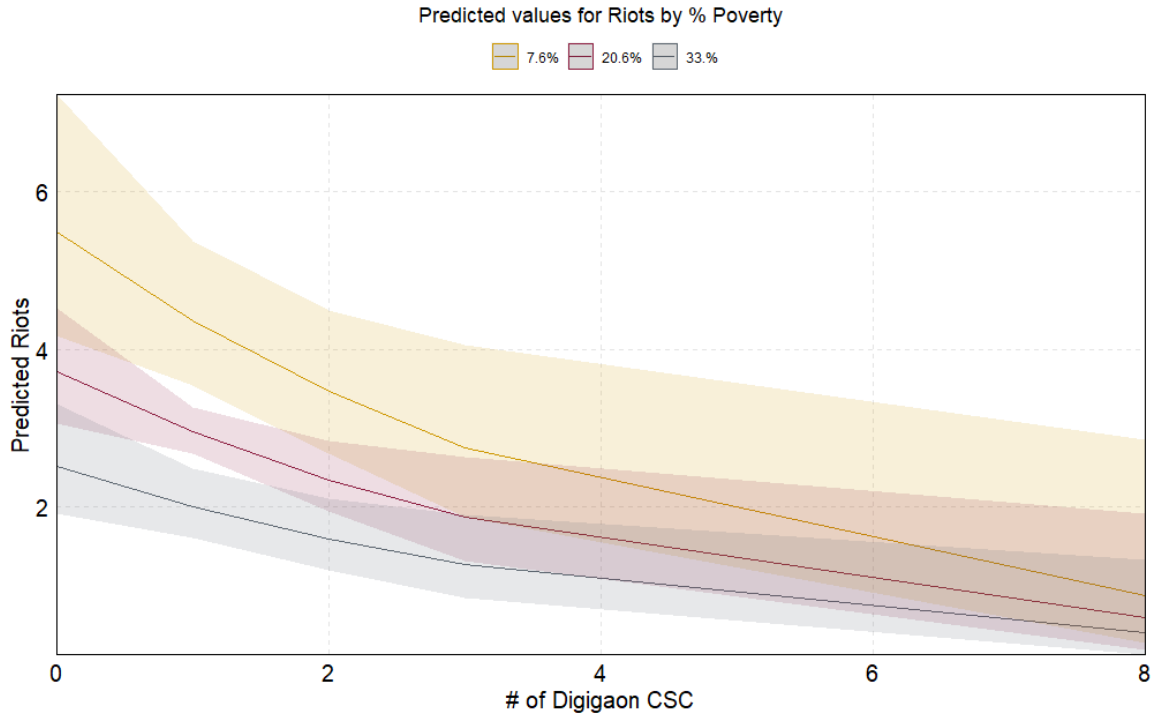


Figure 5.15: CSC Marginal Effects by Poverty

macro and micro - this does not seem to be the case. First, ethnic riots in India have increased dramatically over the time-span examined. Through September of 2019 alone, India experienced 3671 ethnic riots compared to 2885 in all of 2018. This reflects the general consensus among scholars and a wealth of qualitative evidence that has noted a severe uptick in incidents of ethnic riots since the election of the BJP. That 2019 has been a particularly violent year comes as little surprise given the widely reported intensification of inter-religious violence following the re-election of the BJP in May of 2019.

Second, it does not appear that sub-districts which received Digigaon CSCs were more or less prone to violence than those that did not nor does it appear that those which received more than one are different on any characteristic other than population size. Sub-districts with larger populations were more likely to receive a greater number of CSCs but the mean number of incidents of ethnic conflict prior to the introduction

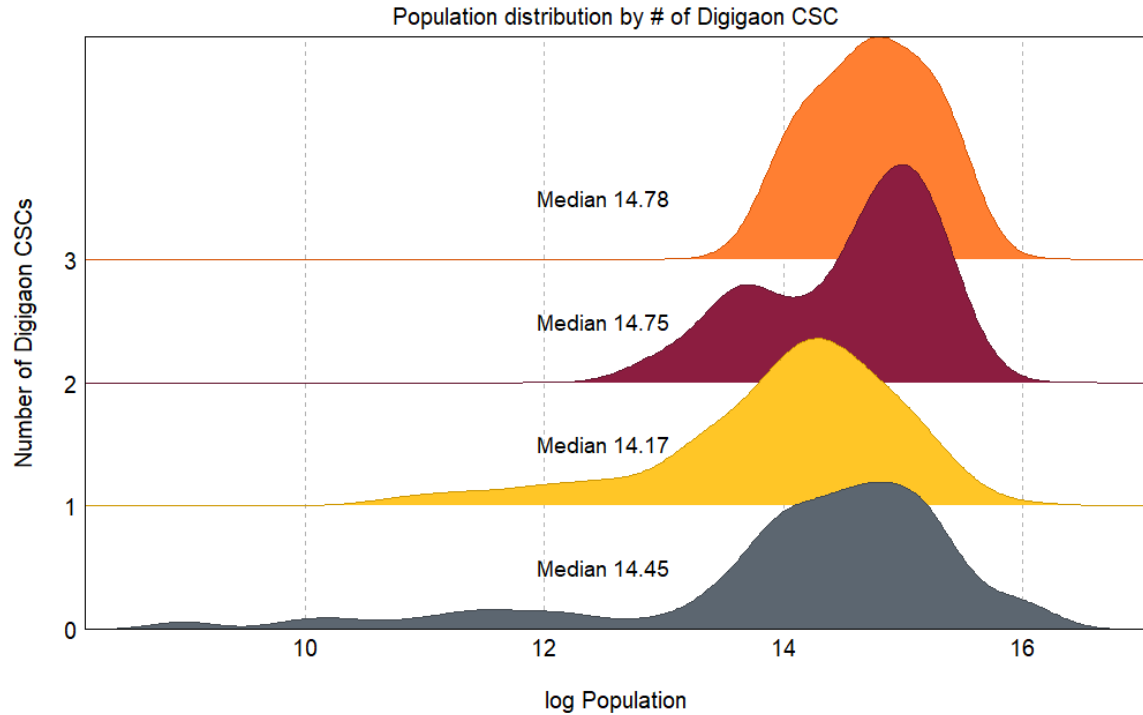


Figure 5.16: Digigaon CSCs Histogram

of CSCs is roughly equivalent.

Furthermore, the graphs given below chart the growth in rates of ethnic conflict over time, subset by number of Digigaon CSCs in the given sub-district. While absolute rates of ethnic conflict events in each category go up year after year, growth in the number of incidents is dramatically higher in sub-districts without Digigaon CSCs post 2017. Despite constituting 13.38% of observations, sub-districts with no Digigaon CSCs contribute nearly 22.09% of the growth in incidents of ethnic riots between 2016 and 2019.

Another concern may be that outlying observations are driving results. While a handful of observations act as high leverage points, none of these points exert unusually high influence on the results of the model. Addressing the most extreme observations can help to clarify. The Akola sub-district of Maharashtra contains a staggering eight Digigaon CSCs while experiencing essentially no riot events across

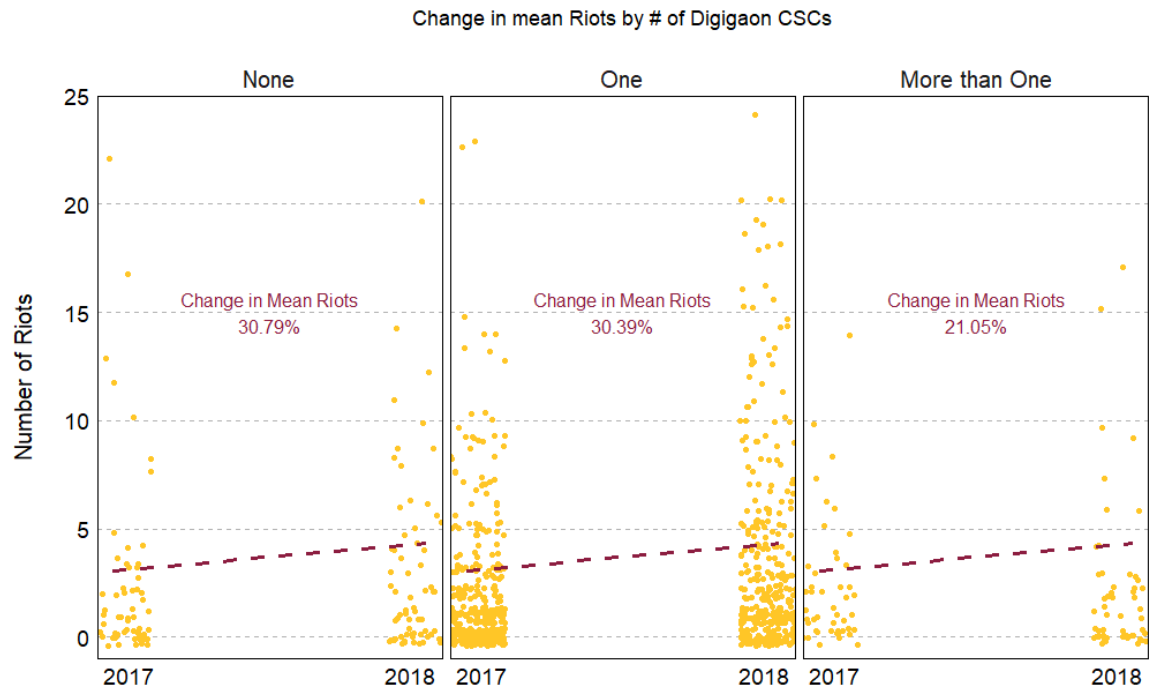


Figure 5.17: Change in Mean Riots by Digigaon

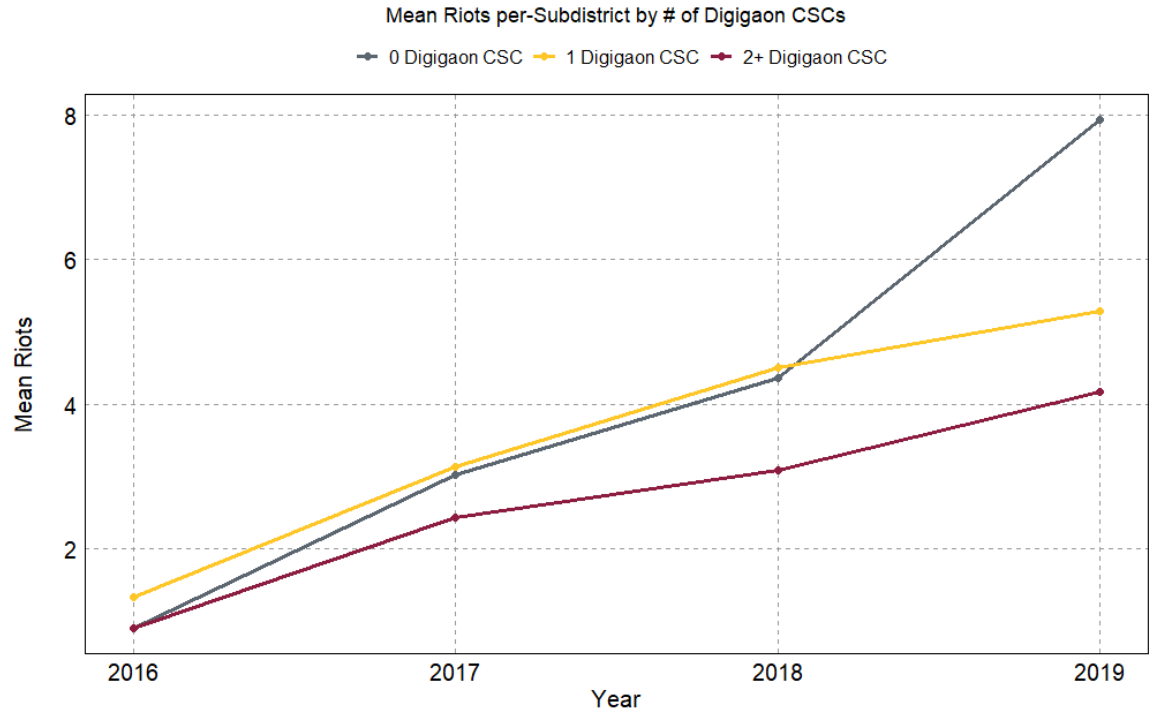


Figure 5.18: Mean Riots by Number of Digigaon CSCs

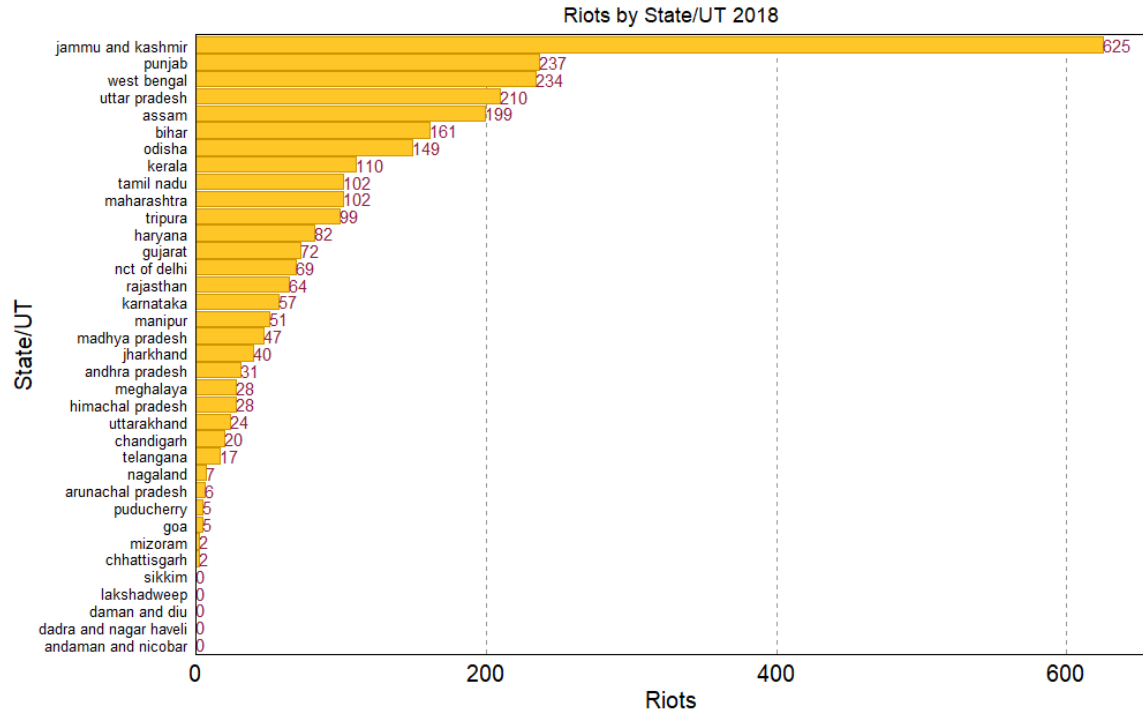


Figure 5.19: Riots by State, 2018

four years. Dropping this point from the presented models returns essentially equivalent results with only minor changes to coefficients of interest and no change in statistical significance. Similarly, examining high observations of ethnic conflict incidents in 2018 and 2019 reveals that many of the most conflict prone sub-districts are found in the state of Jammu Kashmir.

While dropping observations from Jammu Kashmir is one way of testing the robustness of these results - doing so does not substantively change the relationships found - such a step has little theoretical benefit and the observations fall well within the inter-quartile range. To the former point, there is little reason to believe that the effect of Digigaon CSCs would be different in India's most conflict prone and least state-controlled state. If anything, the Digigaon program is most interesting in such a context. To the latter point, while incidents of ethnic conflict events are slightly higher in this state, they do not meet appear to be high leverage points.

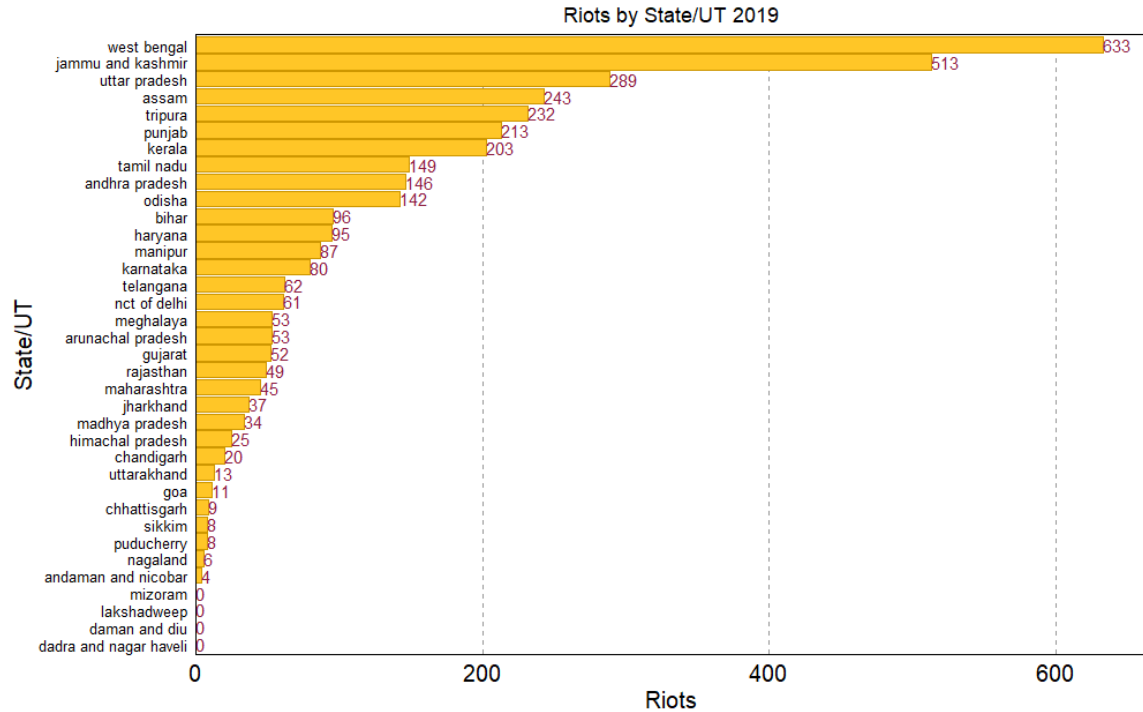


Figure 5.20: Riots by State, 2019

Finally, it may be posited that other underlying characteristics of sub-districts which predict the propensity for ethnic conflict predict the likelihood of opening a Digigaon CSC in the first place. However, this does not appear to be a significant issue. First, observing the distribution of the number of CSCs plotted against various control variables reveals strikingly similar distributions. Histograms of poverty for sub-districts subset by number of Digigaon CSCs, for instance, shows strikingly similar distributions as do histograms of a number of other variables shown below.

Moreover, when the variables most theoretically likely to predict proliferation of technology are included in an OLS model predicting the number of Digigaon CSCs, none but population size return as significant. Most importantly, poverty and rurality are seemingly unrelated to the likelihood of a Digigaon CSC opening in the given sub-district. By these measures, the distribution of Digigaon CSCs seems to be essentially random; a characteristic we would expect given that Digigaon CSCs are highly state

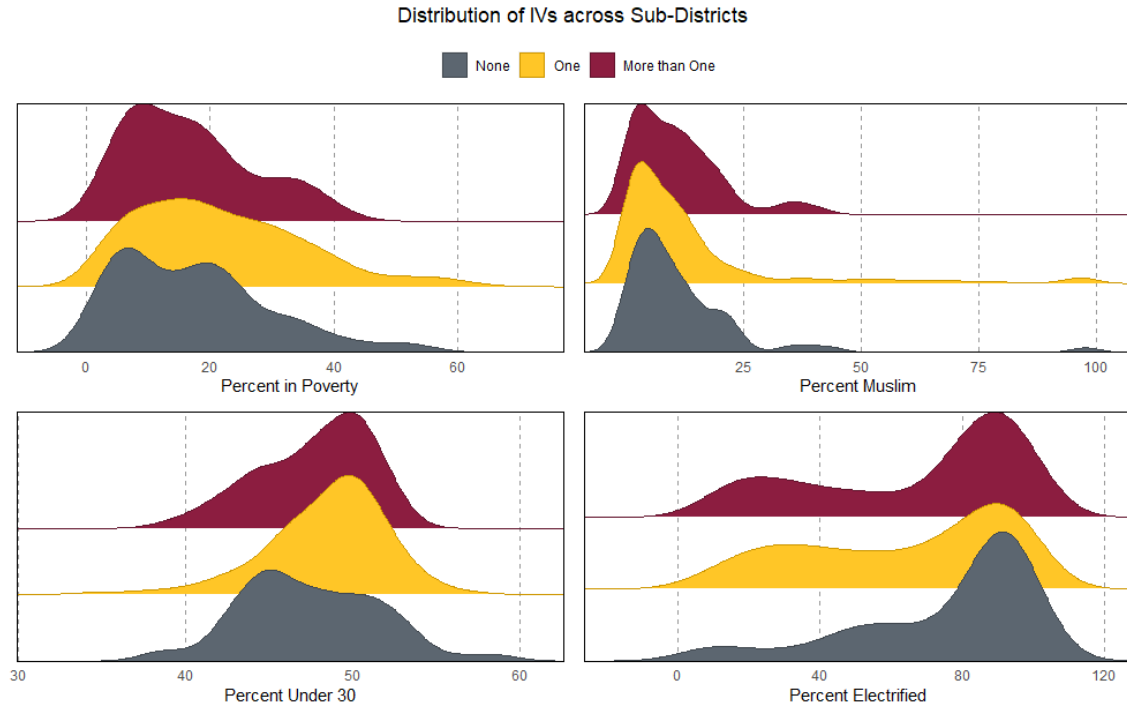


Figure 5.21: Distribution of Independent Variables

subsidized and rely only on the entrepreneurial zeal of given villagers.

5.6 Interpretation

How does the Indian case contribute to our knowledge of ICTs and ethnic conflict? Importantly, it contextualizes the proliferation of technology as a resource; one that is consciously planned by powerful actors. This insight has a handful of ramifications for theorization on ICTs and ethnic conflict. First, it suggests that while private corporations have been largely responsible for the rapid adoption of the internet and cellular technologies, that states ought to be considered as meaningful actors in the domain going forward. Second, it should prompt scholars to rethink what purposes ICTs are being used for and how we theorize about conflict events. Third, it suggests that the effect of new technologies in any direction - pacifying or inflammatory - diminishes over time. Though more data and a longer time period

<i>Dependent variable:</i>	
	Choupal
log Population	0.072** (0.032)
log Area	-0.014 (0.034)
Percent Poverty	0.001 (0.003)
Percent Electrified	0.001 (0.001)
Percent Rural	0.234 (0.181)
Percent Male	-0.909 (1.830)
Percent Under 30	0.142 (0.956)
Constant	0.317 (0.995)
Observations	590
R ²	0.014
Adjusted R ²	0.003
Residual Std. Error	0.604 (df = 582)
F Statistic	1.215 (df = 7; 582)

Note: *p<0.1; **p<0.05; ***p<0.01

Table 5.2: Predictors of Digigaon CSCs Model

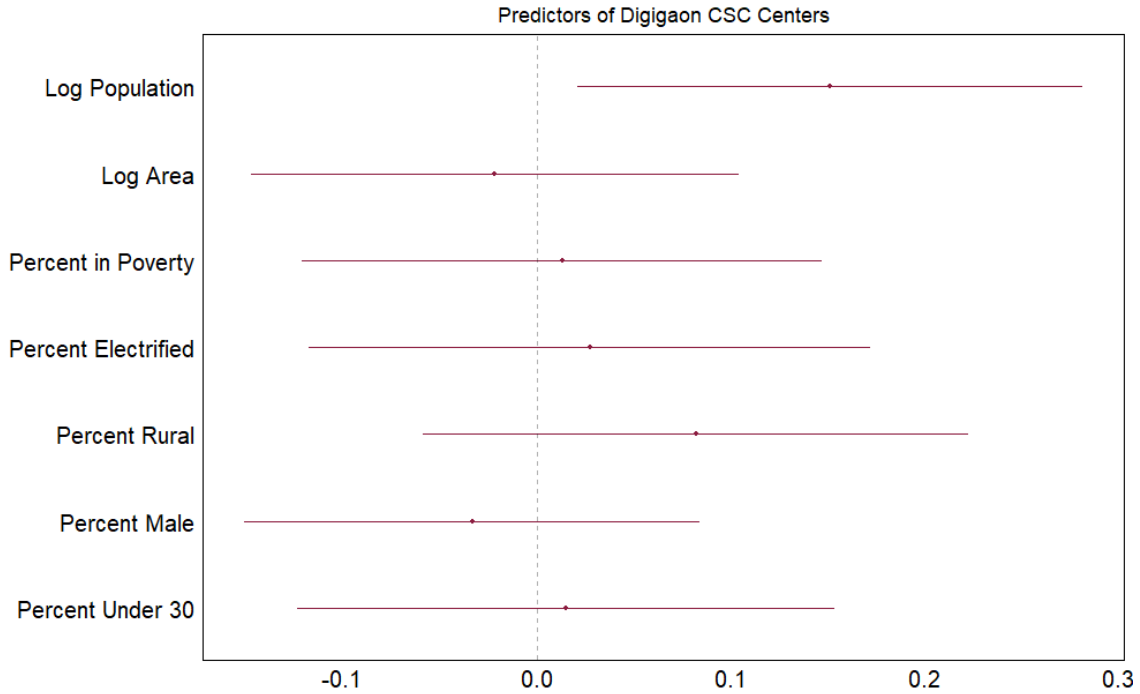


Figure 5.22: Predictors of Digigaon CSCs Coefficients

will help to clarify this position, initial results from this case study imply that no technology is ‘inherently’ suited to pacification or inflammation. Instead, the contextual factors surrounding them can be changed and, as a consequence, the influence of the technologies themselves can be as well.

To expand on the first point, the Indian case helps to illustrate how state-led proliferation of ICTs differs from private corporation-driven proliferation. First, corporations are unlikely to invest in places without profit potential. It’s due to this simple fact that the urban/rural divide in connectivity arises in the first place. Any study of the relationship between communication technologies and the propensity for ethnic conflict must contend with this dynamic. Under a privately-led paradigm, internet connectivity often arises in places which are least likely to experience ethnic conflict at all as these places tend to be wealthier metropolitan areas. State-led paradigms, by contrast, can facilitate the spread of new technologies in a more equi-

table and ultimately unprofitable manner. Whether they do so must be determined on a case by case basis.

Beyond this insight lies the second point; a fundamental question about how technologies are contextualized. Use of the internet generally entails very low barriers to entry, a platform for performative ethnic violence, and a blurring the lines of ethnic identity. While these characteristics are not necessarily untrue, the Indian case helps to illustrate the limitations of such assumptions. Other factors surrounding proliferation mediate their influence in ways that can ameliorate these characteristics and paint the medium as one of pacification instead.

The Digigaon project brings these ambiguities of classification to the fore. While the project itself is overwhelmingly fixated on the spread of the internet, it does so in a manner that reframes the technology. If the structural characteristics of media were the only variables determining its influence on the likelihood of ethnic conflict, it wouldn't matter how the internet was introduced to people. Access to the technology would be sufficient to increase the likelihood of spontaneous ethnic conflict. Instead, we observe the opposite. Internet access is widely used in Digigaon sub-districts to access state resources. At a more fundamental level, the building of a Digigaon CSC and introduction of these services represents a conscious investment by the state; one that is recognized as such by citizens.

Does the internet inflame or pacify spontaneous ethnic riots? What this chapter has hopefully done is to turn the answer from a solid 'inflame' to a more ambiguous 'it depends.' While scholars have been careful to note the differing effect of technologies on varying populations such as those in rural vs urban areas, less attention has been paid to the contextualization of use itself. The spread of technologies, especially those that require intensive infrastructure, should no longer be taken as a given. Broader questions concerning actual use of the internet are of the utmost importance. How

did the internet get here? How did these people learn to use the internet? What do they use it for? These questions are not trivial; answering them may help to resolve some of the ambiguities currently plaguing the study of ICTs and conflict.

Finally, the Indian case suggests that the effect of these technologies is variable and temporally limited. While not a problem of methodology, one issue characterizing the extant literature on ICTs and conflict is that of the ethical ramifications of scholars' findings. If the introduction of cellphones dramatically increases the likelihood of conflict, especially in rural areas, what are the implications of such findings for technology policy? Should states refuse proliferation of technologies to underserved areas to prevent an increase in conflict events? Withholding resources from already neglected populations seems like a poor conclusion to reach based off of this evidence.

The Indian case suggests that the effect of technologies can change. While not the core findings of this chapter, the Digigaon program seems to have a diminished effect over time. Not only do additional centers contribute marginally to the reduced likelihood of spontaneous ethnic conflict but the influence of centers themselves goes down the longer they exist. Knowing that a change is possible is an important finding. Moving from a view of technologies as static in their effects on populations to one that views them as sensitive to the particularities of their circumstances helps us contribute to a broader conversation on the ethics of technology policy.

These three contributions constitute the core of the case study presented in the preceding chapter. First, scholars should meaningfully consider the role of the state in technology proliferation going forward, especially as 'profitable' markets are exhausted and attention shifts towards rural and under-connected areas. Second, the contextualization of new mediums is important. Third, technologies may not be as inherently or persistently effective in a given direction as previously thought. The internet is not necessarily only a tool for anti-state activity nor is it 'liberation tech-

nology.’ More likely, its effect is conditioned on the circumstances of its proliferation.

5.7 Conclusion

India is a country of perennial fascination for scholars of ethnic conflict for good reason. Phenomena studied in the context of the world’s largest and one of its most diverse democracies rarely yield to simple analysis. The country’s approach to the internet and the problems associated with its proliferation is no exception. India has stumbled repeatedly in its endeavors to deliver a high quality, accessible, affordable, and equitably proliferated internet. But it has also had its fair share of successes.

For scholars of communication technology and ethnic conflict, India is a country worth studying. Its history of violent ethnic conflict continues into the present day and seems likely to continue intensifying in the near future. Understanding this conflict and finding interventions that can serve to diminish it is integral to its position as a democracy. Moreover, with the vast untapped potential of its rural population now being recognized and actively addressed, the country has entered a period of technological transformation that commands attention.

In this chapter, I’ve attempted to make the case that India’s internet proliferation projects contain important insights into the study of ICTs and spontaneous ethnic conflict. I discussed the Bharatnet program and how it succeeded in laying a robust internet infrastructure to rural and urban areas alike, if not much else. Next, I examined the Wifi Choupal and Digigaon initiatives. In particular, I argued that these programs differ from privately-led internet proliferation schemes in that they contextualize internet use in pacifying ways. Following this I presented the results of quantitative analysis meant to test hypotheses that emerge from this theory. I showed that the distribution of Digigaon CSCs does not appear to be biased towards urban, wealthy, or densely population areas. Furthermore, I showed that Digigaon CSCs

have a significant pacifying effect on the sub-districts in which they operate. After this I interpreted these results, stressing how they ought to influence our theoretical understanding of ICTs. I argued that state-led proliferation differs from private-led proliferation, that the structural characteristics of media do not entirely determine their effect on the likelihood of violent incidents, and that this influence can change over time.

Studying India simultaneously elicits profound cynicism and hope. It is impossible to study projects like Bharatnet and Digigaon without leaving with some sense of admiration. While counts of violent incidents paint a bleak picture, uplifting narratives - however rare - temper the urge towards nihilism. A child becoming the first literate person in their family via CSCs, rural villages accessing proper medical care via telemedicine, individuals connecting with long lost family via WhatsApp and Skype; these are stories that can remind us of the profound influences of human connectivity. Whether the internet can produce more of these stories and fewer stories of violence remains to be seen. Hopefully this study has contributed in some small way to making such a reality possible.

Chapter 6

CONCLUSION

6.1 Discussion

6.1.1 *Summary*

If the scholarly community ever viewed modern ICTs as liberation technology, that time has long since passed. Instead, a muted pessimism now characterizes the study of the internet and its influence on political behaviors. The internet facilitates violence, misinformation, fear, and paranoia. The totality of the medium has consumed civic life, obliterated the public sphere, and atomized society. These diagnoses are concerning twice over. Their content suggests a terminally unravelling social order and, more troublingly, the theoretical framework used to generate them offers little in terms of a way forward.

This dynamic is evident in the literature concerning ethnic violence and ICTs. A broad consensus, built on a rational choice foundation, has come to view modern ICTs as uniquely inflammatory. ICTs have been conceptualized as tools that condition the costs of given behaviors. In this dissertation, I've attempted to push back against this framing. To do so, I've emphasized three points. First, not all behaviors are best framed as the product of coldly calculating actors. Second, not all technologies are equivalent as far as the relay of information is concerned. Finally, contextual factors matter. These three contentions are made in support of this work's broader conclusion: access to the internet increases the likelihood of ethnic riots.

The account given here conceives of ethnic riots primarily as performative in nature. Ethnic identity is constructed through behaviors that are mutually understood

to delineate the boundaries between in and out-groups. When these boundaries are perceived to be constant and clear, mundane acts of performance suffice to maintain them. The celebration of ethnic festivals, open practice of religious rites, and engagement in culturally specific behaviors fulfill the necessity of performance in mundane circumstances. Likewise, riots are performances that help define the boundaries of ethnic identity when those boundaries have become intolerably blurred. The perception of siege, whether it accords with reality or not, precipitates this intolerable ambiguity.

As with any performance, riots demand an audience and not all technologies provide such an audience. The internet, unique among modern ICTs and distinct from cellphones, excels in doing so. The structure of its connections intensifies the urge towards insularity among already insular communities. This, combined with the capacity for simultaneity of communication, produces audiences who are constantly exposed to information that destabilizes the perceived boundaries of ethnic identity. Moreover, these structural characteristics allow for the emergence of crowd dynamics. They allow co-ethnics to act as a crowd would in real life; in-group members can comment on, tacitly approve of, and incite acts of ethnic violence. A riot performed in one place can find an audience in another. Cellphones do not facilitate this dynamic.

And yet, certain contextual factors condition the likelihood that the internet is used in such a manner. In India, the proliferation of a publicly funded, affordable, and welfare-contextualized internet has helped pacify incidents of ethnic riots. When introduced to uninitiated populations as a tool that can help deliver essential services, the internet soothes instead of inflames. The urge towards insularity can be subverted and the relationship users have with the internet can be framed towards productive ends. India helps show that the internet and the people who use it are dynamic. The former need not necessarily have the same deleterious influence everywhere it springs

forth and the latter can use tools for productive means.

6.1.2 *Riots as Performances*

The first contention made in the project is that ethnic riots are best understood as performances. Chapters 1 and 2 do the work of supporting this position. First, chapter 1 explains why such a shift is necessary by examining whether extant theoretical approaches are appropriate. I argue that material and rational choice approaches, employed widely in the ethnic conflict literature, are not. A review of the literature suggests that such approaches fail to accurately differentiate ethnic riots from other types of ethnic conflict. Riots are not strictly the product of objective deprivation nor do the actors engaging in such behaviors do so for strictly rational purposes.

This is an important step in supporting the overall conclusion that the internet has a positive effect on the likelihood of ethnic riots insofar as it builds a foundation for understanding the processes that drive the relationship. Interpreted through the collective action framework, the introduction of a communication technology has the same effect on all behaviors - it decreases the cost of coordination. However, in the context of ethnic riots, this is a dubious interpretation twice over. First, it ignores the content of the material passing through these networks. A collective action/rational actor approach excises the uniquely 'ethnic' content of ethnic riots. Recent use of the internet in ethnically fractious states suggests this is a mistake. The type of information passing through communication networks is critical to understanding why ethnic riots occur. Rumors and misinformation are not incidental to the outbreak of riots; they are necessary components whose role and function should not be ignored. The collective action framework is uniquely unsuited to incorporating these insights.

Second, it raises questions about why riots - intensely local events - are influenced at all by these technologies. Riots occur within networks that already have strong,

in-person channels through which information passes. The ability to tactically organize neighborhood members is only marginally improved by the introduction of the internet, if at all. Usage patterns on the internet do not suggest that the medium is being used to organize collective action in the traditional sense; at least not with regards to ethnic riots.

Having highlighted the deficiencies of extant theoretical frameworks, chapter 2 articulates the theoretical link between ethnic riots and the internet. In chapter 2, I argue that riots are best understood as performances, expand on the aspects of an efficacious performance, and explore why the internet is well-suited to carrying such performances. While chapter 1 explains why other theoretical approaches are deficient, chapter 2 attempts to address these weaknesses.

Chapter 2 does important work in expanding the metaphor of ethnic riots as performances and the purpose driving such performances. Theorizing ethnic riots as performances aligns them with the constructivist framework uniformly used in comparative studies of ethnicity. Ethnicity is an ascriptive identity, one that is built and reinforced through mutually understood symbols and behaviors. In and out-groups are delineated by these performances. Conceptualizing riots as performances allows us to reintroduce the uniquely ‘ethnic’ content of ethnic riots into our theorization. Moreover, it incorporates important observations about the outbreak of ethnic riots into our theoretical approach. The content that circulates on social media prior to incidents of ethnic riots is uniquely inflammatory. It articulates an anxiety about the boundaries of ethnic identity that necessitates drastic performances.

Further, chapter 2 emphasizes that performances require both, performers and audiences. This is a crucial step in connecting communication technologies to ethnic riots. The internet is *not* simply a mechanism for rioters to communicate among themselves. It is a medium through which rioters can interact with the crowd nec-

essary to making riots meaningful. To that end, the internet is a uniquely effective medium for broadcasting performances and garnering reactions. It structurally encourages the intensification of pre-existing groups, allows rioters to broadcast their behaviors to that group, and further allows them to gauge their reactions.

Chapters 1 and 2 help to articulate why the internet plays such a critical role in the outbreak of ethnic riots. In them, I put forward an approach to understanding ethnic riots that is far better aligned with our *prima facie* observations than the collective action approach. Further, I build on this foundation by exploring the implications of this theoretical shift. The metaphor of a performance is not a shallow one; it is critical to understanding why the internet effects ethnic riots in the way it does. Audience and performer are brought close by it.

6.1.3 Evidence and Disaggregation

Chapter 3 tests hypotheses that emerge from this theory. I make two overarching points in this chapter. First, I provide evidence that the internet increases the likelihood of ethnic riots. Second, I provide evidence that the internet is *unique among the modern cohort of ICTs* in doing so. The second point cannot be understated as it is a direct implication of the network dynamics explored in chapter 2.

To accomplish the first goal, I present results from a cross-national, time-series dataset that measures the effect of internet proliferation on the likelihood of ethnic riots. Findings from these models suggest that the internet has a positive effect on the likelihood of ethnic riots but that this effect is contingent on the level of internet penetration. Prior to a threshold of internet penetration, a society is unlikely to experience any increase in the likelihood of ethnic riots.

This finding furthers the central claim made in this project in two ways. First, it provides evidence for the central hypothesis: that the internet increases the likelihood

of ethnic conflict. In the countries that constitute the sample used, the relationship appears significant. These countries are largely developing ones. It is exactly in these regions of the world where the variance in internet penetration is highest and the applicability of findings would be most appropriate. Second, this finding adds nuance to the network theory approach employed in chapter 2 and provides evidence that the internet and other ICTs are structurally different.

If the theoretical model of networks and information explored in chapter 2 is correct, a threshold effect is exactly what we would expect to see. Cellphones facilitate different types of communication than the internet. The former moves information between two individual users while the latter allows for many-to-many communications that characterize a crowd. Until internet penetration reaches a certain point, these many-to-many networks simply cannot exist and the crowd dynamics posited cannot emerge.

Chapter 3 provides empirical evidence that supports the core argument made in this work. It suggests that the theoretical approach employed in chapter 2 may be a worthwhile one to continue pursuing. Further, it validates the idea that modern ICTs are not interchangeable. In doing so it tackles the most apparent alternative explanation for the phenomena observed. Chapter 3 goes some way to dispell the idea that cellphones alone are responsible for the increase in observed ethnic riots. Further, it shows that theorizing about ICTs differently is a worthwhile endeavor.

6.1.4 Case Study and Conditioning Factors

Finally, Chapter 4 presents the case of India in an effort to probe at the contextual factors under which the proposed theory applies. Given that robust theorization about ICTs, the nature of their proliferation, and the content relayed by them constitute central points of contention in this work, this case study is of great importance.

Chapter 4 is critical to understanding the contingent nature of the central claim made in this work. Factors including state involvement and welfare accessibility will be critical in planning the proliferation of the internet such that it does not spark future conflict.

Chapter 4 is also important in that it allows us to observe what internet proliferation might look like going forward. Much of the work of internet accessibility that remains to be done concerns rural and otherwise underserved populations. India is an exemplar in this regard. These populations are hard to reach. It is reasonable to assume that the manner in which they will be connected to the internet will be different than city dwellers. Moreover, it stands to reason that they will have different demands and expectations of the internet. The case of India helps paint a picture of what that might look like going forward. What role does/will the state play in this project around the world?

The case of India suggests that it will play a major one. As the demand for high speed, reliable internet grows, so too will the demand for robust infrastructure projects. Bharatnet and Digigaon Choupals exemplify this need. Moreover, it is difficult to imagine such projects as anything other than state-sponsored efforts. Until now, internet penetration has largely happened in urban areas as a result of private enterprise. However, the marginal benefits of such growth have reached their limits, at least as far as profitability are concerned. The entrance of the state as a major player in telecommunications infrastructure and, more importantly, last mile connectivity, implies numerous considerations. While internet proliferation is largely a valence issue worldwide, access to the internet may become a contentious and politicized resource in its own right. While this has appeared not to be the case in India for various reasons, we should expect such a dynamic to emerge going forward.

The case of India also inadvertently supports the idea that ICTs ought to be

disaggregated. The extant literature understands technological progression as linear. One technology proliferates, then the next, then the next. Each waits its turn until the prior technology has gained a sufficient number of users. India shows that this is unlikely to be the case going forward. Rural Indians do not understand the internet not as an addendum to cellular technology. Rather, the internet is a tool that facilitates access to state welfare programs *independent of* cellphones.

Chapter 4 is critical to fully fleshing out the implications and lived context of the core claim made in this work. Given that the internet increases the likelihood of ethnic riots on average, what does this relationship look like in an actual place. How is the internet experienced, what type of content does it facilitate, and why does it facilitate that type of content? Chapter 4 examines the case of India and suggests a number of factors that are important to consider going forward.

6.2 Points of Differentiation

This account speaks to a literature concerning organized ethnic conflict and ICTs but differs from those accounts in meaningful ways. Most importantly, it views the processes that initiate conflict as symbolic in nature. Much of the mainstream literature theorizes on conflict events as the outcome of rational processes. This approach has yielded important insights into organized ethnic conflict but falls short in explaining unorganized ethnic conflict. The former are extended affairs. They involve clearly articulated, strategic goals managed by players who have a vested interest in long-term success. The latter are gratuitous, lack clearly articulated political goals, and are generally not carried out over long periods of time.

This theoretical shift entails several benefits. First, it aligns our theoretical understanding of riots with what we *prima facie* observe about them. If riots are the product of improbably calculating politicians, observing rioters certainly doesn't give

that impression. Rioters highlight the impunity with which they undertake their task. They go out of their way to spread news of their actions and often delight in their gratuity. These are not characteristics of rational actors, traditionally understood. Rational actors avoid the possibility of sanction; they do not court it.

Second, it injects a deeper understanding of identity and its formation back into the study of ethnic conflict. Missing from much of the extant literature is any content that can help us make sense of the uniquely ethnic dimension of ethnic conflict. If we are all constructivists now, our work should reflect that. Instead, works on ethnic conflict largely assume such identities are given. Ethnicities simply conflict. That such behaviors might belie a shifting and active process defining such identities is rarely considered in the conflict literature. Incorporating a critical literature that seeks to understand these behaviors as endogenous to the process of ethnic identity formation is important. Such a step humanizes theories that have by-and-large excised the affective element from social phenomena.

This account also differs vis-a-vis technology in two ways. It disaggregates modern ICTs from each other and considers the contextual factors that can define the use of said technologies. As ICTs continue to evolve, researchers will need to make theoretically grounded distinctions to understand why and how technologies differ in their influence on political outcomes. The structural constraints each successive technology places on the relay of information provides a solid foundation for such distinctions. Such an approach cuts to the core of what defines communication technologies: the networks of information they create. Recent studies have started on this path but future works will need to expand on this initial foray.

Considering the contextual factors that define the use of communication technologies also provides theoretical benefits. Tools can be used to various ends, some productive, others destructive. To reduce the effect of a given communication tech-

nology to a singularly positive or negative one evinces a myopic understanding of how people communicate and why. ICTs constrain information; they do not generate it. The information that passes through them reflects the appetites, actions, and connections of society at large. When these appetites, actions, and connections center on the amelioration of material deprivation, the information that passes through these networks will be fundamentally different from information that is generated in an ethnically fractious society. We should expect differences in the type of information conveyed to have an effect on the type of behaviors undertaken. Extant accounts generally fail to consider this nuance.

6.3 Weaknesses and Future Research

Still, an honest appraisal of this exploration of ethnic riots implies theoretical weaknesses that will need to be addressed in future research. First, a critical approach to ethnically motivated violence can be difficult to reconcile with quantitative analyses. Concepts generated in an interpretivist framework tend to resist being collapsed to numeric indicators. Indeed, the importation of interpretivist concepts is often avoided primarily because said concepts are formulated without mind to cause and effect type relationships. Interpretivist approaches to the study of identity focus on processes and meaning. Inelegantly measuring these complex concepts through rough quantization threatens to undercut the strength of using said concepts in the first place. Interpretivist concepts are not suitable for the study of all phenomena but they can contribute to expanding the boundaries of currently stale concepts. Future research will need to carefully consider what behaviors are amenable to theoretical approaches beyond the collective action / rational choice framework and pay particular mind to how aspects of these theoretical approaches are translated into quantitative analysis.

Second, the disaggregation made between cell phones and the internet will likely only be relevant for a short period of time. Development of communication infrastructure in the developing world has increasingly prioritized the use of internet-enabled smartphones. Moreover, the cost of a basic smartphone is remarkably inexpensive even in the most destitute of countries. Myanmar's experience attests to how irrelevant such a distinction will be going forward. For nearly 60 years the country was hermetically sealed from the global community and yet, roughly 10 years after its opening, an enormous portion of its largely poor population use the internet. The specific distinction between cellphones and the internet will likely fade in theoretical importance as the dominance of the internet continues. Still, such a distinction will be useful in future research. It can re-orient studies of ICTs and violent behaviors away from the presence or absence of a given ICT and towards examinations of what those ICTs are being used for. Moreover, it can help provide a framework for the analyses of ICTs during future transitions.

Third, the case of India leaves many contextual factors underexplored. The internet can be contextualized in numerous ways and India provides insight into just one. State-sponsored internet programs are likely to become more common, but behaviors online will likely be mediated through other factors. It may be currently meaningful to speak of a population who have their first experience with the internet as adults but this is unlikely to constitute a large portion of people coming online for the first time going forward. Exposure to the internet, even among the world's most destitute populations, will happen in youth. This suggests that the quality of traditional and civic education will come to play a larger role in how the internet is used and to what ends. Future research will need to examine how and what institutions do this task.

6.4 Reflection: The Critical Dimension

The study of conflict and its predictors has fast become methodologically complex. Scholars ascertain with shocking precision the effect of an intervention like the introduction of a cellular signal on the likelihood of violence. But to what end? Missing from the vast majority of the extant literature is a clear answer to the so what question. So what, if cellphones increase the likelihood of anti-state ethnic violence? So what, if the internet makes ethnic riots and lynchings more likely? So what, if the modern cohort of ICTs are atomizing society? The ethical and policy implications of these findings are rarely addressed. Lacking, in much of the conflict studies literature, is a critical dimension.

This is a troubling omission. Social scientific inquiry of any variety implies ethical obligations. It is insufficient to describe phenomena in as ‘objective’ a manner as feasible. Instead, it is imperative that scholars reflect on the policy and ethical implications of those descriptions. The aim of social science ought not to be the accumulation of decontextualized knowledge. What worth is there in such an endeavor if it does not improve the embodied experiences of those whose suffering is the subject of said knowledge? Studies of violence have a special duty in this regard. Conflict data are the product of deadly processes. The use of this data, when divorced from the bloody realities that produced them, is well criticized as an extractive and exploitative practice. That findings from the use of this data do not meaningfully benefit those whose suffering created it is a stain on the discipline.

Erasing that stain will require a shift in the priorities of conflict scholarship. Researchers will need to interrogate questions of actionability and ethics as zealously as they currently do causal ones. While not mutually exclusive categories, these questions consider the role and objective of research after and before it is undertaken

respectively. Chiefly, scholars will need to consider what policy choices are implied by their analyses. Left to those less immersed in the subject, the translation of research into policy decisions is done to disastrous consequences. Moreover, a serious engagement with the ethical circumstances and consequences of conflict research is necessary.

Briefly exploring why these steps are necessary and possible approaches to their implementation can help clarify the issue. Consider the lack of concern for actionability. The simplest policy interpretation of the conflict literatures findings on ICTs suggests that they should not be proliferated. If access to the internet and cellphones cause ethnic conflict, their absence is preferable. Practically, this position is self-evidently absurd. The development and distribution of new technologies is an almost inevitable process. And even if the proliferation of modern ICTs could be halted, it could certainly not be reversed. Modern ICTs extend so far into society that most of those who are yet to be connected by them are already highly deprived.

The failure to consider the policy implications of research findings has meant ICTs have metastasized unchecked throughout the developing world. Social Media companies are exploitative, monopolistic, and incendiary in their campaigns to extend networks to every corner of the globe. This is not to say that scholars have an obligation to somehow stop major corporations from abusing their positions, but it is to say that the rise of these companies has happened in a policy vacuum. Scholars wary of making scientifically informed policy suggestions enable an environment in which the wildest rhetoric of telecom companies goes unchecked.

Scholarship is a reactive process but one that should aim to inform future decisions. We now know what factors impede ICTs capacity for fostering ethnic conflict. That knowledge should be used to inform, and in appropriate cases constrain, the spread of ICTs. A powerful state presence, be it in the form of welfare or state-sponsored

broadcasts, seems to diminish the effect of ICTs on ethnic conflict. Area experts can help inform what this factor looks like in different contexts and can do so with the weight of scholarly evidence. In producing knowledge, scholars ought to take responsibility for its interpretation and implementation. There are no better experts than those who undertook the research in the first place. Their involvement in process of policy construction is critical to achieving better outcomes than those we've already observed.

Finally, scholarship concerning deadly violence ought to reflect on the ethical circumstances and obligations that inform it. Measures of ethnic riots and anti-state activities are abstractions. Constant use of such indices - including the UCDP and ACLED datasets - desensitizes practitioners to what they are abstractions of. Each of these measures captures dismemberment, loss of life, or permanent displacement; events that permanently reshape the lives of those who experience them for the worse. This is not to suggest that such topics are ethically unsuitable for scientific analyses. Instead, it is to push back against methodologies and theoretical approaches that strip the human element from social research. The solemnity of this topic should not be lost in our zeal to discover truths about it.

Seriously considering what our findings mean in the context of lived experience is an important first step. What does it mean for a riot to be 2% more likely or for a given technology to increase rates of lethality by 8%? No individual can perceive such a change; a percent increase in lethality is meaningless in the context of one person or even one community. Such findings, when presented as abstractions upon abstractions, lose their capacity to tie social research back into the human experience. Tabrez Ansari is dead; beaten and tortured, his last moments of existence have now been collapsed into a single increment added to a measure that researchers like me toy with until it yields an interesting result. What is the purpose of social research if

not to act on those results; to do whatever exists within our capacity to keep another from incrementing that measure again?

6.5 Conclusion

I have undertaken three tasks in this dissertation in support of one central claim. First, I have theoretically recast riots as performative behaviors. Second, I have disaggregated the modern cohort of ICTs. Third, I have explored one of the contextual factors that inform the use of the internet. These three contentions support the claim that the proliferation of the internet increases the likelihood of spontaneous ethnic conflict. To support this claim I have undertaken cross-national quantitative analysis and a more in-depth case study of India, focusing on the Bharatnet and Digigaon programs. This exploration contributes to the extant literature insofar as it prompts theoretical innovation. Moreover, it lays out areas in which the literature can improve and produce more humane research.

The dominance of violent nationalisms worldwide makes this research timely and relevant. Misinformation courses through the arteries of societal information networks and wreaks destruction in its path. The ability to conceptualize this process effectively and counter it is imperative to maintaining democracy and ensuring the safety of precarious populations. I hope this dissertation has made a small contribution to that end.

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