

TERRORISM AND TECHNOLOGY: HOW INTERNET COMMUNICATION
TECHNOLOGIES PROMOTE TERRORISM IN STATES

By

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(Under the Direction of Daniel Hill)

ABSTRACT

Terrorism has changed throughout history as technology has evolved. Terror organizations adapt new technologies into their organizational apparatus and attack methodology. Recent developments in Internet Communication Technologies (ICTs) allows terror organizations to perpetrate more coordinated attacks. In this paper, I explore how ICTs have changed terrorist attack strategies in three phases: pre-attack, during the attack, and post attack. I create a dataset that will analyze the impact of higher internet penetration rates in states on the number of terrorist attacks. I use negative binomial regression on 160 countries from 2000-2018. I find that the expansion of ICTs in states increases the number of terrorist attacks.

INDEX WORDS: Terrorism, Internet Communication Technology, Propaganda

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CHAPTER 1

INTRODUCTION

In recent years, the development and expansion of ICTs has greatly affected political dissent (Weidmann 2015). ICTs are technologies that provide access to information through telecommunications that include cellular phones, social media, and the internet. ICTs have risen to prominence since the Arab Spring, when protesters used ICTs to remove leaders that were entrenched in power for decades (Rod and Weidmann 2015). These technologies are hailed as “Liberation Technologies” that allowed protestors to communicate, coordinate, and share information (Diamond 2010). The Arab Spring demonstrated that ICTs are some of the most powerful tools for communication and mobilization (El-Baradei 2011). Similarly, these technologies were utilized in other protests across the world (Veenstra, et al. 2013, Rafael 2003, Fisher, et al. 2005).

ICTs have additionally helped political violence strategies develop. Traditional forms such as radio and television have always impacted dissident violence (Yanagizawa-Drott 2014, Crabtree, Darmofal and Kern 2015). Mobile phones are also dramatically impacting conflict in war zones by improving coordination and information sharing among insurgents (Pierskalla and Hollenbach 2013, Shapiro and Siegel 2015). Social media technologies and apps are the most recent developments in ICTs and are impacting how audiences view and participate in conflict (Warren 2015 , Zeitzoff, Kelly and Lotan 2015, Zietzoff 2018). ICTs are effecting how combatants are mobilized for war (Patrikaarakos 2017). Strategies for fighting and battlefield tactics are also being reshaped by these advancements in technology

(Dafoe and Lyall 2015). Mahmood and Jetter (2020) show how terrorist groups can use ICTs to facilitate communication, coordination, and recruitment.

Dissident groups often suffer from a variety of collective action problems: imperfect information, free riders, and mobilization issues (Tilly 1978, Lichbach 1995). In this article, I explore the relationship between Internet Communication Technologies (ICTs) and terrorism, while building upon the work of Mahmood and Jetter (2020). This analysis contributes to the body of research on political and collective violence by testing the effect of ICTs on terrorism attacks and how they help terrorist groups overcome collective action problems while controlling for government censorship of the Internet. Similarly, this analysis demonstrates the correlation between the level of democracy in a regime and internet penetration rates. My research will furthermore contribute to the field of technology and terrorism, demonstrating how ICTs are harnessed by terrorist organization before, during, and after attacks.

The rest of this paper is organized as follows; in the next section, I outline collective action theories and how they relate to dissent. Next, I discuss the evolution of technology and how these developments have impacted violent conflict including terrorism. I include an analysis on the impact of technology and terrorism propaganda. Then, I discuss how terrorists use ICTs during three phases. After, I provide a section detailing my methodology. Following, I discuss my empirical results with a discussion and analysis of the results. Lastly, I provide concluding remarks and implications for future research and policy.

CHAPTER 2

DISSENT, COLLECTIVE ACTION, AND DEPRIVATION THEORIES

“The theme of revolt against authority is an ancient one” (Lichbach 1995). Throughout human history, people have tried to overthrow existing powers and replace them with regimes, institutions, and social structures that more accurately reflect their interests, needs, or vision. These conflicting interests over who should govern, how power is distributed, and who gets what often lead to conflict and violence. Social disorder often results from these groups and individuals as they dissent (ibid). Domestic dissent involves individuals or groups of individuals that desire to impose their preferred public policy opinions on society that run contrary to the preferred policies of the state (Moore 2000). Similarly, dissent occurs when nonstate actors threaten or impose costs on the governing elites to coerce the government to alter policy regarding the allocation of power, the distribution of resources, etc. (Ritter and Conrad 2016). The two theoretical traditions, deprived actor (DA) and collective action (CA) theory, seek to explain why people dissent or rebel.

Collective action or rational actor approach occurs when multiple individuals work together to achieve a common objective, good, or interest (Olson 1965). Tilly (1978) outlines five big components of collective action: interests, organization, mobilization, opportunity, and collective action itself. As groups organize and mobilize mutual cooperation can help them obtain public goods that can benefit the group and its members. The collective action approach furthermore can resemble a prisoners dilemma where individuals choose to demonstrate or not demonstrate. (Lichbach 1995, Moore 2000). This model is based on the informational problems

associated with dissent; if others will participate this can alter the behavior of additional people dissenting or choosing to stay at home. However, coordination problems can arise from collective action. Because the cost of participation is high and the consequences can be severe, free riders are those that associate with the movement or group and obtain access to its benefits but do not participate in the efforts to obtain them. This is also known as the Rebels Dilemma (Lichbach 1995).

Opposite to the collective action approach is the deprived actor approach propounded by Gurr (1970). Gurr maintained that deprivation results in discontent. As discontent increases it will eventually lead to dissent. Under DA theory, grievances lead to identification with other actors that suffer from deprivation. Grievances can include discrimination, necessities not being fulfilled, or injustices. Gurr (1970) advanced the term relative deprivation where individuals compare the benefits or injustices that they receive compared to other groups in society and what they feel they are entitled to. It is these feelings of anger, frustration, and deprivation that eventually lead to dissent; collective dissent is therefore a result of individual preferences and beliefs regarding deprivations (Lichbach 1995)

Violent and Non-Violent Dissent

States face both violent and nonviolent internal dissent. Carey (2010) outlines five forms of domestic dissent: demonstrations, strikes, riots, guerrilla warfare, and revolutions; each type differs in the number of people that participate, the level of violence, and the degree of organization. Nonviolent dissent includes antigovernment demonstrations and general strikes. Antigovernment demonstrations are “any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority,

excluding demonstrations of a distinctly anti-foreign nature”. Similarly, general strikes are “any strike of 1,000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority”.

On the contrary, violent dissent includes riots and guerrilla warfare/terrorism. Riots involve “any violent demonstration or clash of more than 100 citizens involving the use of physical force”. Additionally, guerrilla warfare/terrorism is defined as “any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime”. Uniquely, protests can be violent and nonviolent. Tarrow (1991) defines protests as “disruptive collective action that is aimed at institutions, elites, authorities, or other groups on behalf of the collective goals of the actors or of those they claim to represent.” Sabine (2010) offers a modified definition from Tarrow (1991) that “protests are as any confrontational activity by domestic non-governmental actors that disrupts and challenges any government actor, agency, or policy; this includes verbal threats, as well as non-violent and violent actions.”

Individuals who use collective violence and violent dissent use it to achieve purposeful goals (Lichbach 1995). Often, violent dissent is utilized to achieve power or influence power (Stevens 1975). Furthermore, it can be used to get policy concessions from the government or allow dissenters to enter into the decision-making process. Violent dissent additionally can alter the status quo and force governments to redistribute resources. Collective violence or dissent, therefore, is a type of political bargaining or communication against elites to obtain concessions (Hobsbawm 1952). Correspondingly, violent dissent can attract new members to the cause and

enforce moral with old members; it has the ability to build popular support and help mobilize supporters (Lichbach 1995). Collective violence further can radicalize dissidents in a group and solidify their support and willingness to use more violence for the cause (ibid).

Terrorism and Violent Dissent

Terrorism is a form of violent dissent. However, terrorism is difficult to define. Academics have struggled over a consensus regarding the definition of terrorism, providing over 109 different interpretations (Schmid and Jongman 2005). These definitions differ in their targets, scope, and relation to other forms of violence. Most definitions share the elements of violent force, political fear, emphasis on terror, threats, psychological effects, reactions, and distinguishing between targets and victims, (ibid). For the purposes of this paper, I used a definition from Richards (2014). Richards (2014) defined terrorism as *the use of violence or the threat of violence with the primary purpose of generating a psychological impact beyond the immediate victims or object of attack for political motives*. Likewise, Hoffman (2017) asserts that terrorists develop their attacks intentionally to communicate their political messages beyond their immediate victims. This definition adopted from Richards asserts that the targets of terrorism are irrelevant; they can be either civilian or military (Richards 2014). Furthermore, Richard's (2014) definition maintains that the motivation of the attack must be political.

However, this definition contrasts with other scholars who contend that terrorism is distinguished from other forms of political violence. Particularly, terrorism and guerrilla warfare are two different types of violence. Some scholars view the two as separate points along the same line that uses violence (Schmidt 1984). However, others draw clear boundaries between terrorism and guerrilla warfare (Ganor 2002). The key distinction between terrorism and

guerrilla warfare is the nature of their targets. Terrorists and guerilla fighters might have the same objective to bring down the state, however, terrorists focus on damaging the political structure of the state by attacking civilians, while guerrilla fighters attack military targets first. Grounds for this distinction can be found in the Geneva Convention, where the treaty's protocols distinguish between soldiers that attack military objectives from war criminals that attack civilians (Ganor 2002). Moreover, the rules of engagement are different between the two types of conflict; guerrilla warfare is a smaller scale conflict that is similar to a larger war and shares the same rules, however, terrorists do not follow a code of conduct or rules of engagement (Sprinzak 1985).

Importantly, terrorism is a method or tactic of dissent regardless of the type of actor. In terrorism studies a distinction can be made between terrorist groups and those that deploy terrorism as an insurgent and political strategy (Richards 2014). For instance, The Revolutionary Armed Forces of Colombia (FARC) is a guerrilla group that has used methods of terrorism; Hamas is a social and political movement that additionally incorporated terrorism methods into their strategy (ibid). Terrorism as a method of dissent can be used to call attention to political grievances when states are repressive or there are restrictions on free media, the press, and speech (Piazza 2017). These findings correlate with the theoretical framework advanced by Gurr (1970) where individuals that suffer from grievances and deprivation will lead to dissent (Piazza 2017). However, other scholars content that terrorism follows more of a collective action approach. Terrorism as a form of dissent is made to attract policy concessions from the government. It follows a rational actor approach, where terrorism in this model is a means to a political end (Crenshaw 1988). The behavior of the dissidents results from a cost benefit analysis, not deprivation, frustration, or grievances (Carey 2006).

CHAPTER 3

DISSENT AND TECHNOLOGY

Innovations in technology affect the level and degree of collective dissent; as technology improves dissent will increase (Lichbach 1995). Similarly, the development and incorporation of ICTs into social movements increases the capability for mobilization (Garrett and Edwards 2007). Therefore, dissidents often incorporate new technology into their strategies and tactics to make them more effective. Dissident leaders will introduce new technologies to help the group in their progress towards providing public goods for their members while keeping the costs of participation low (Lichbach 1995, Fireman and Gamson 1979).

Dissidents, most importantly, also suffer from coordination and communication problems. Information problems can hamper collective action and prevent mobilization. Limited information about the activities of other dissidents, their efforts, and available resources can slow dissent efforts (Carey 2006). Similarly, incomplete information can produce failures, induce surprises, and reduces the probability of victory (Tilly 1978, Lichbach 1995). However, technology can help to overcome coordination problems and information limitations. Classical protests suffer from coordination and a lack of information; these technologies reduce barriers to political participation by providing more information electronically (Veenstra, et al. 2013) ICTs furthermore can provide logistical information about demonstrations and protests to help dissenters better organize (Bedoyan, van Aelst and Walgrave 2004).

Specifically, ICTs have helped protestors significantly while dissenting against the government. ICTs recently have received a lot of attention as they helped protestors and

dissenters overthrow repressive regime in Africa and the Middle East during the Arab Spring. ICTs during this time became a powerful communication tools to mobilize individuals and share ideas (El-Baradei 2011). During the Arab Spring, ICTs were dubbed as ‘Liberation Technologies’ or those that expand political and social freedoms (Diamond 2010). ICTs have helped to overcome the challenges that dissenters face by making information more easily and freely accessible than ever before. Additionally, these technologies have been used in labor protests in Wisconsin, the ‘Battle of Seattle’ protests at the world trade center, and the ‘People Power’ revolution in the Philippines (Veenstra, et al. 2013, Rafael 2003). During five different protests on globalization, 80% of the dissenters used the Internet to organize, get information, and coordinate with other protesters (Fisher, et al. 2005). Correspondingly, Neumayer and Raffl (2008) found that social media particularly Facebook found helped to organize grassroots protesting and political inclusion in Colombia.

Traditionally, dissenters have relied on older forms of communication that were slower such as face-to-face communication and were dependent upon “social proximity” and “interpersonal affect” (Snow and Eklund-Olson 1980). ICTs are unique compared to earlier forms of communication such as the radio and television; they facilitate communication between two or more parties and improve mobilization (Diamond 2010, Rod and Weidmann 2015). ICTs enable protestors to mobilize as they can transmit ideational messages of groups to potential supporters (El-Baradei 2011). Importantly, those that are supporters that have not yet joined the movement can be targeted with ICTs by likeminded individuals to help facilitate organization, opposition, and protest (Lynch 2011, Myers 1994). These technologies provide a decentralized network of communication between dissenters that also allows them to communicate with others

outside the organization to bolster recruitment and overcome coordination problems (Diani 2000, Pierskalla and Hollenbach 2013).

Violent Conflict, Dissent, Technology

Historically, the emergence of new technology is often harnessed for political conflict; advancements in ICTs have helped violent dissident groups reach their goals, coordinate, and organize better. Traditional forms of ICTs such as radio and television have always impacted political conflict. Yanagizawa-Drott (2014) demonstrate that in the Rwandan genocide radio broadcasts increased militia and citizen violence against the Tutsi population; showing that mass media can affect participation in violence due to exposure. Individuals who received these messages were more prone to engage in violence as they altered beliefs and preferences. These messages also showed the threat and costs of non-participation as many moderate Hutus who did not participate in the violence were also killed. The radio broadcasts additionally dehumanized the Tutsi population, making violence easier, and increased ethnic hatred. Further, this study shows spillover effects that those not directly targeted by the media messaging participated in the atrocities through their indirect exposure from social ties and interactions.

Crabtree, Darmofal, and Kern (2015) investigate how television broadcasts affect mobilization during anti-regime protests. They analyze West German news broadcasts that could be received into East Germany and how they influenced the 1989 East German Revolution. They assert that collective action theories point to informational tipping points, where information conveys others' political beliefs and level of participation that can cause potential participants to change their beliefs about participating in collective action. They find evidence that the media did not influence the coordination of antiregime protests that led to the collapse of the East German Communist Government. However, Grix (2000) contends in his analysis that West

German Television did in fact contribute to the mobilization of protestors in East Germany. Comparatively, television has increased the capacity for violent political action. The use of television to influence public opinion in war dates to Vietnam. Vietnamese insurgents could not directly compete with the military power of the United States. Therefore, attacks were coordinated to attract American public attention to the conflict in hopes of turning it against the war. Cordesman (2005) demonstrates that insurgents in Iraq exploited Arab satellite television and news channels by coordinating attacks to produce higher casualties at high profile targets to receive more media coverage. Similarly, Sunni insurgents ran a 24-hour television channel, Al Zawraa, to show attacks that were carried out against Americans (Chadwick 2006). FARC in Colombia managed its own TV station, New Colombia, to draw international attention to the peace process with the Colombian government (Loyle and Bestvater 2019)

The development and proliferation of more sophisticated cell phones has dramatically impacted conflict. Pierskalla and Hollenbach (2013) demonstrate how the use of cell phones affect insurgent violence in Africa; the availability of cell phones allows political groups to overcome collective action problems, improve cooperation, organization, and coordination. Specifically, mobile communication across long distances can help to overcome free rider problems with in group organization. Organizing participation in collective violence is risky, difficult, and the benefits uncertain. The authors assert that individuals participating in collective violence endure high costs and the benefits of their success, toppling a regime or government, will be felt by a wide population. Therefore, the free riding problem is even higher. Cellphones greatly reduces the free rider problem by promoting higher communication, awareness of behavior, shared beliefs, and allows rebel leaders more control over their member's activities. Shared beliefs are improved and reinforced among groups members but also the local population.

Cell phones can disseminate rapidly news of government atrocities and indiscriminate killings to sway nonparticipants to the insurgents cause (Peterson 2012). Correspondingly, the use of cell phones in insurgent activity can help with combating the overwhelming power of the state and its monopoly on violence. In Liberia's civil war, rebel commanders were coordinated and controlled using cell phones (Reno 2011). Islamic insurgents in Iraq would use text messages over multiple cell phones to avoid electronic interference from U.S. intelligence (Cordesman 2005). Cell phones facilitate more interaction with local support networks such as the civilian population and can increase material support and information that they provide. Shapiro and Siegal (2015) further show how the Taliban in Iraq are able to use cellular communications in their insurgent strategy; cell phones were used to remotely set of bombs and detonate other IEDs. The development of smartphones further has allowed insurgents and rebels to more quickly access satellite imagery and google maps that can impact the development of strategy during conflict (Dafoe and Lyall 2015).

The development of social media platforms has also significantly impacted political conflict. Zietzoff (2018) demonstrates that social media, twitter, can influence conflict and public support for conflict intensity; his study examined the impact of social media during the 2012 Gaza Conflict between Israel and Hamas. He finds that shifts in public support via social media can reduce conflict intensity and that the effect is greater than the effect of international actors. Zietzoff contends that social media sources increase the speed of information, allows new audiences to follow a conflict, and elicit feedback. Leaders, state and non-state actors, can communicate differently with their armed forces and incorporate new strategies. Furthermore, Patrikarakos (2017) demonstrates how social media can impact asymmetric warfare in his qualitative case study of the 2014 Gaza War and the War in Eastern Ukraine. He demonstrates

how the narrative or informational dimension of war is becoming more essential and impacting the physical battlefield and post political battles. In the Gaza War, increased social media exposure from Twitter coverage highlighted the violence and tactics perpetrated by Israel. Patrikarakos shows how individuals armed with smartphones and Twitter can document coverage in war zones and gain international attention. This international attention can alter the political outcome of the war as Israel was heavily painted as the ‘aggressor’. Comparatively, social media such as Facebook can be used to organize fighters in war zones and influence civilians to become combatants. Individuals used Facebook to organize local volunteer battalions and solicit funding to purchase materials for war. In a similar quantitative work, Singer and Brooking (2018) demonstrate how state and non-state actors can weaponize social media. Actors can use social media platforms to create so much misinformation that it can reinvent and alter reality; reality becomes a social construct. Social media backed by automated messages, fake accounts, and artificial networks can reinforce beliefs, consolidate group cohesion, spread propaganda, and help mobilize individuals for violence.

These technological developments have significant impacts upon political violence and dissent. Foremost, technology can facilitate collective action regarding political violence by increasing the speed of communication and reaching a larger population (Weidmann 2015). Rebels and dissenters can now coordinate faster to attack government targets including buildings and personnel. Moreover, rebels can adjust their tactics more swiftly to counter-revolution tactics from government forces. The incorporation of ICTs makes violence easier to plan and more unpredictable. The content of communications is also becoming richer; photos, text, voice can all be sent instantaneously (ibid). This makes gathering intelligence for battle faster, more reliable, and provides more detail on potential targets. Similarly, ICTs allow targets to become more

vulnerable and create new targets that could not be previously attacked without the use of ICTs. Communications are now also mobile, meaning that during fighting and dissent individuals are not bound by hardwired communication systems that cannot be transported. The battlefield is also expanding to include non-combatants; NATO soldiers on the front lines of the conflict in Ukraine were targeted via social media and so were their families (Pickrell 2019). Technological developments also increase the risk that conflicts will expand, ignoring geographic boundaries, as information about fighting and ‘strategic learning’ are disseminated across borders and to other groups (Weidmann 2015).

Technology and Terrorism

Other groups of dissidents, such as terrorists, also incorporate new technological advancements into their strategies and tactics. Wilkinson (1993) states that “The role of technology is crucial to any adequate assessment of terrorism and the measures needed to combat it effectively.” Similarly, Jenkins (1975) asserts that the development of new technologies is affording terrorist groups the growing capacity for larger destruction. Rapoport (2004) identifies that terrorism have evolved over four separate waves. In each new wave, terrorists have adopted new technologies into their attack methodologies. In the early twentieth century, the evolution of dynamite fueled the first wave of terrorism in Russia (Singer and Brooking 2018). Similarly, in the second wave of terrorism, hit and run guerilla tactics were often used against police and military troops (Rapoport 2004). The development of light weight portable machine guns that could be concealed easily made these ambush styled terror attacks much easier. The evolution of passenger airliners also contributed to new terrorist tactics; during the third wave of terrorism, terrorists frequently hijacked aircraft and held passengers hostage until ransoms were paid or fellow terrorists released from prison.

Furthermore, terrorists incorporated the development of mobile missiles into their strategy. Lastly, in the fourth wave of terrorism, terror networks began to use the internet to assist with terror attacks (Harrison 2018).

Comparatively, before the internet revolution, terrorists relied heavily on print sources such as news papers to provide coverage of their attacks. With the development of radio stations and television networks, terrorist's messages and propaganda were able to be broadcast more directly. Terrorists adopted their strategies to utilize these new mediums. For example, during the 1972 Munich Olympics, the terror group Black September took several Israeli athletes hostage; 900 million people watched the hostage crisis in 100 countries (Martin 2008). The terror group relied on the media to communicate their message and agenda to the public. Similarly, in 1975, Carlos the Jackal took 70 hostages, but he waited for the television cameras to arrive before fleeing on a plane. Furthermore, communication at this time was limited to face to face (Mahmood and Jetter 2020). During attacks, terrorists had to rely on word of mouth or potentially use radios. However, these tactics have changed with the development and expansion of the internet (Conway 2006).

Specifically, the internet facilitates the growth and development of terrorism in several ways. The internet increases the volume of traffic, the speed of communication, it is low cost to use/ operate, and has a global reach. Thomas (2003) states that terrorists now can use the internet for "the digital coordination of an integrated plan stretching across geographic boundaries that may or may not result in bloodshed". Furnell and Warren (1999) identify the main uses of the internet by terrorists as propaganda/publicity, fundraising, information dissemination, and secure communications. Similarly, Weimann (2004) identified 8 major ways that terrorist organizations are using the internet: psychological warfare, publicity,

propaganda, data mining, fund raising, recruitment/mobilization, networking, information sharing/planning/coordination. Recently, the development of social media platforms such as Twitter, Instagram, Facebook, and WhatsApp have allowed groups such as terrorists to communicate and coordinate more frequently. These technologies are relatively low cost to implement and operate; content is much easier to create and requires little technical expertise to operate. Terror groups can use technology to frame their message to a wider audience, generating larger support, and thus gain more financial support (Walter 2017). ICTs have significantly helped terrorist networks such as ISIS, The Taliban, and Al Qaeda to mobilize thousands of fighters (Loyle and Bestvater 2019). Correspondingly, Klausen (2015) writes that social media has played a large role in jihadists' strategy in Syria and Iraq. Klausen shows that terrorists use social media such as Twitter, Facebook, Instagram, and kik. These platforms allow terrorists to communicate and provide a legitimacy to their violence. Similar software such as Tor allows terrorists to encrypt their software and hid their location. Further terrorists are shielded from censorship and policing. Websites used by terrorist groups for recruitment and organization have increased in their thousands since 1998 when there were only 12 (Walter 2017).

Just as the Internet facilitates rebel groups to last longer, terrorist organizations will last longer as well as they can gather more materials and finances and not depend upon a single source of income (Collier, Hoeffler and Soderbom 2004). Further, the literature on civil wars state that they are likely to break out and spread to neighboring countries (Kathman 2010). Terrorist organizations comparatively are more likely to spread their violence to other countries via the internet by the sharing of their ideology and recruitment of foreign fighters (Walter 2017). Violence against civilians will also intensify. Rebel groups that traditionally

solicit support from locals are less violent as they depend on them for material support (Wood 2014). However, as the internet frees terrorists from dependence on civilians they can target them with violence; ISIS received substantial funding from outside Iraq and was more likely to target civilians (Walter 2017).

Terrorism, Propaganda, and Psychological Warfare

Terrorism can be viewed as a type of social movement; social movements typically need propaganda and rhetoric framing to help overcome collective action issues (Anderson and Sandberg 2018). “Propaganda is the expression of opinions or actions carried out deliberately by individuals or groups with a view to influencing the opinions or actions of other individuals or groups for predetermined ends and through psychological manipulations” (Hoffman 2017). The main idea behind terrorist propaganda is to gather and draw more public attention in order to achieve more publicity (Injac and Dojcinovski 2015). Hoffman (2017) asserts that the spreading of terrorist propaganda can raise awareness of the terrorist cause, increase recruiting, increase financial support, and impact counter-terrorism tactics.

Organizations using political violence often suffer from information problems. Because of imperfect information, dissidents and sympathizers to the cause might not know the group or movement exists (Lichbach 1995). Dissidents seek to extend public awareness of the group in order to mobilize new members and encourage solidarity among current members. Propaganda can help overcome these incomplete information problems. Foremost, propaganda helps to persuade the public to the legitimacy of the terrorists cause. This is important as the state has a vested interest in controlling the narrative of terrorist violence. The state can use its media resources to portray the terrorist as radicals, that their cause is unjust, or practitioners of random

violence. The government can additionally censor and restrict terror group's messages and reduce their publicity (Rod and Weidmann 2015).

Traditional media coverage of dissenting groups can alter and effect the collective action of its members by swaying public opinion against the group by personifying them in a negative light (Taylor 1986). Terrorist propaganda can distribute banned or censored information and help to construct a different narrative than that of the government (Meyer 1991). Terrorist propaganda is necessary to counter the negative effects of their attacks. Terrorist groups typically target the civilian population (Ganor 2002). As terrorist violence causes havoc among the civilian population, terror propaganda can persuade the population that the violence is for their benefit and in their interests (Meyer 1991). Propaganda ensures that collective public opinion does not turn against the terror network.

Terrorist propaganda can reach a larger audience often outside of the organizations immediate vicinity of operations and attacks. This allows terrorists to draw from a larger recruiting pool. Similarly, propaganda allows terror actors to target more vulnerable populations or marginalized social groups. It allows terrorists to use psychological manipulation of audiences, affecting minds, beliefs, attitudes. Terrorism propaganda is similar to a type of psychological warfare; it is important for controlling and influencing people (Ganor 2002). Terrorist attacks drive fear and intimidation into the population. Propaganda that covers these attacks or the terror group can impact the population beyond the physical damage of attacks. Moreover, propaganda helps in radicalizing individuals for the terrorist cause or ideology. Propaganda can help create the necessary conditions for individuals to radicalize and commit terrorist violence (Stahelski 2005). Correspondingly, propaganda allows terrorists to reshape and revise history to suit their purposes; it allows them to recharacterize the past that makes the

group seem more favorable or appealing with a struggle that is a just one (Meyer 1991). Terrorist propaganda can present the terror group and as legitimate state builders with commitments to social and community development (Anderson and Sandberg 2018). Lastly, terrorist propaganda may intentionally be distributed to provoke government forces into attacking the terrorist organization and rally support.

Building off Mahmood & Jetter

Mahmood & Jetter (2020) look at the impact that communication technology (CT) such as newspapers, radio, television, and the Internet has on how terrorists spread their message, recruit followers, and coordinate among members. Their theory incorporates both collective action motivations for terrorism as well as relative deprivation theory. However, they also contend that CTs can provide surveillance of terrorist networks and lead to their arrests. Further, they suggest that terrorism and CTs have a curvilinear effect; first becoming attractive, but then reduces over time. Their analysis covers the time period of 1970-2014. They base their analysis on Becker's (1968) work on crime, where he discusses the costs of crime to society, the optimal amount of crime that can be reduced with the optimal levels of punishment, and the probability of being caught. Terrorists maximize their profits by using CTs; more investment in terrorism and CTs yields a larger return. However, the returns from CTs and terrorism are diminishing. The authors contend that less and less is gained from an additional attack. For example, exposure to a terrorist attack from increases in CT would not have the impact a second time through more advanced means of CT. Similarly, as terrorists communicate with CTs the marginal effects become smaller as technology improves. Further, they assume a curvilinear association because governments can also incorporate the use of CTs and target terrorist members leading to their arrest.

In their methodology, they use a kernel density plot to test the ratio of successful terrorist attacks over the total number of attacks then correlate this against the KOF. The KOF is an index of information designed to represent the flow of information across society. The KOF measure includes data on internet, television, and newspapers in a state. They find a decreasing relationship, which they attribute is to the ability of governments to incorporate ICTs for counter terrorism for terrorist apprehension. However, as the main dependent variable, terror attacks, they use both successful and unsuccessful attacks. Furthermore, they disaggregate between domestic and international attacks. Moreover, they assert that in several studies measures of press freedom were employed to capture the media regulatory environment in a state (Li 2005, Chenoweth 2010). Mahmood & Jetter contend that these measures usually based on Freedom House's freedom of the press indicator are outdated because they do not accurately reflect the degree to which information is censored in a society. They contend that the KOF measure is broad enough that the general degree of information flow might affect the ability of terrorists to carry out an attack. Further, the press freedom variable does not accurately capture the full flow of information.

In this study, I build off the work of Mahmood & Jetter (2020). This research follows a collective action framework similar to mentioned above. That terrorist organizations use ICTs to further their terrorist attacks. While, Mahmood & Jetter (2020) use the KOF index that includes the number of internet users this study focuses solely on ICTs (internet communication technologies) measured as internet penetration rates as a percentage of population. While Mahmood and Jetter use the KOF to capture internet users there is a potential problem coupling it with other measures of information. Their time series extends back to 1970 and progresses through 2014. The internet did not start developing until around 1990. The KOF measure thus

accounts for traditional sources of media such as newspapers and then incorporates the development of the internet; these mediums can correlate in their design to spread and share information. Furthermore, the KOF does not account for radio that was a large media medium before the invention of the internet. This study isolates the effect solely on the internet on terrorism and does not combine it with other mediums of communication and media.

Importantly, in their model they do not directly control for government censorship. They assert that the KOF because it captures the total flow of information it therefore indirectly captures the pace of information dissemination including possible censorship. This pace of dissemination influences the decision and rate of terror attacks. This study instead uses a direct measure of internet censorship, from V-Dem, that captures the degree to which the government censors the internet in a state. Moreover, this study assesses the interaction between levels of regime democracy and the development of the internet. The development of the internet and its levels of penetration in a state are intimately connected with how democratic a government is. While these authors control for how democratic a nation is, using polity score, they do not interact an indicator of democracy with an indicator of the internet. This interaction will shed further light on the association of internet penetration rates and levels of democracy.

This study also departs from Mahmood & Jetter (2020) as it focuses solely on collective action problems associated with terrorist organizations. Additionally, this study contributes to the literature on political violence by building upon the theoretical framework of rebellion, political, technology, and collective action. Moreover, departing from Mahmood & Jetter (2020) this study will show that rather than having a curvilinear relationship that increases in ICTS will increase terror activity. Today, in 2020, there are 7.7 billion people in the world and 3.5 billion of those people are online (Roser, Ritchie and Ortiz-Ospina 2020). The more people that are online

increases the chances that they are used for terrorism or are viewers of terrorist violence. This study also incorporates elements from Yanagizawa-Drott (2014), mainly that terrorists can use mass media to influence members and non-participants to carry out terrorist violence. Media can mobilize terrorists by influencing social ties, interaction, beliefs, and preferences. It can influence the costs and benefits of participating in terrorism violence. Further it can influence emotions such as anger and hatred. The association of terrorism and ICTs can further have spillover effects into other areas. ICTS can similarly help terrorists overcome free rider problems, provide leaders with more control over their members, enforce shared beliefs, and increase local population support (Pierskalla and Hollenbach 2013). ICTs additionally increase publicity for terrorist organizations and the use of social media can influence audiences (Zietzoff 2018). Larger numbers of users on the internet increases the odds that like minded people will be mobilized and recruited (Mahmood and Jetter 2020). ICTs also allow terrorist organizations to control the narrative of a conflict and how the public views the messages behind their attacks (Pierskalla and Hollenbach 2013). It demonstrates how the use of ICTs in asymmetric conflict can help terrorists in the long term in combating the state's monopoly on violence.

CHAPTER 4

ICTS AND THE THREE PHASES OF TERRORISM

Pre-Attack

ICTS help facilitate better organization, recruitment, planning, and radicalization before an attack. The internet allows terrorists to evolve from groups with a physical location to organizations that exist virtually. The creation of new social media websites allows individuals to connect online based on common interests, political ideologies, and geographic location (Woolley, Limperos and Oliver 2010). Meetings are not confined to the backrooms of Mosques, internet cafes, or shady alleys, but now can be conducted in the realm of cyberspace. Popular apps and social media platforms provide peer to peer communication that greatly aid terror groups in organizing for an attack. Popular app technologies used by terrorists to evade detection, communicate with each other and their followers are What's app, Signal, Facebook messenger, and i-messenger. (Anderson 2019). These technologies allow members to communicate more effectively as their transmissions cannot be as easily intercepted or monitored as with cell or satellite phones (Thomas 2003). The internet allows terrorists to reach out to the public with more direct control over their messages free from government screening and filters (Zanini and Edwards 2001).

ICTs have changed how terror organizations recruit new members. In the past, recruitment was face to face, top down, and involved lots of socialization (Smith and Alarid 2020). Comparatively, terrorists now can use websites to recruit anonymously. These websites allow terrorists to vet new members virtually (Conway 2006). Groups from around the world including Hamas, Hezbollah, the Basque ETA, Shinning Path, and the Japanese

Red Army have used websites to bolster their ranks with new recruits (Weimann 2006). Islamic radical groups, especially ISIS, have successfully made use of websites to recruit new members. ISIS uses websites and chatrooms designed to target youth and young women, who are impressionable, to commit violence in their home countries (Smith and Alarid 2020).

Moreover, social media sites provide a large recruitment pool for terrorist organizations. The START Profiles of Individual Radicalization in the United States (PRIUS) found that more than 50 percent of individuals radicalized for terrorism came through the use of the Internet (START 2017). Social media platforms offer interactivity among individuals that no other mass media has before (Dauber and Ilter 2019). Interactivity on social media encourages people to identify themselves with the terrorists and find meaning in the terror group. Terror networks utilize social media sites such as Facebook, Twitter, and Instagram to connect directly with civilian populations. These types of ICTs provide peer to peer functions that allow terror groups to connection with sympathizers and solicit support. ISIS adapted social media into its recruitment strategy more than any terror group previously. Often, individual terrorist members would use their own personal accounts to encourage support for ISIS, attempt to recruit new members, and share pictures and videos from the battlefield that depicted ISIS in a positive light.

Furthermore, ICTs allow terror networks to become decentralized. No longer are terror groups needing a central leadership with a hierarchal organization to formulate attacks. Now, terror groups can operate more effectively as smaller cells that are decentralized, without a headquarters, or central leadership (Conway 2006, Mahmood and Jetter 2020). ICTs especially social media, have changed the structure of terrorist organizations for the foreseeable future. Formerly, larger organizations that were hierarchically structured were subject to failure

from leadership decapitation. Furthermore, the centralization of the organization ensured that plans for attacks were structured from the top down, suffering from bureaucratic constraints much like any centralized organization, however, smaller cells operate with more flexibility. Smaller terror cells can better adapt to local conditions and operate without oversight from the central operational command. Moreover, the advancement of ICTs makes recruiting locals for attacks easier. ISIS began using ICTs to encourage foreigners to travel to the 'Caliphate' to wage war against its enemies. However, their strategy altered as they began to instead encourage those that supported the terror network to carry out local attacks. ISIS has large success with this strategy with lone wolf attacks in the United States (Boston Bombing, San Berardino, Pulse Nightclub).

Terror tactics used in attacks have evolved with the incorporation of ICTs. Planning an attack is easier than ever as satellite images of locations are readily available to prescreen attack targets. ICTs allow terrorists the ability to select their targets with more accuracy using Google Maps and other software that pinpoints exact locations. Satellite images, such as Google Earth imagery, can be consulted to fully develop the precise positions of vulnerable targets and the locations of military and police installations. The terrorists in Mumbai India in 2008 used Google Earth to recon the city before the attack; understand the layout of the city and locations of key targets (Goodman 2011). The terrorists in Mumbai, additionally, watched digital footage to understand the flow of people. This pre study of the target locations allowed them to recognize where the best places for an attack would be to maximize damages. Moreover, ICTs allow terror actors to map where police, military, and security installations are located that could attempt to engage the terrorists. Similarly, the social media profiles of individuals can be studied to gain insight to specific locations that could be potential targets. Many sites where you can post pictures such as Flickr have metadata that can aid in terrorists

in identifying targets remotely (Goodman 2011).

Before the development of ICTs, terrorists had to build remote training camps, clandestinely transport recruits there, and operate in secret. Many of these camps operated in countries that openly endorsed terrorism such as Libya. The PLO and IRA made use of such camps using the 70s, training new recruits in bomb making, small arms training, ambushes, and urban warfare. Recently, Al Qaeda was known for its network of training camps around the middle east. However, with the advancement of ICTs many terror organizations provide online training manuals that contain methods and instructions on how to carry out an attack; Al Qaeda and ISIS both have used these tactics. (Anderson 2019, Droogan and Peattie 2018). Training manuals provide insight into how to construct bombs, carry out attacks, conduct arson, and understand counter terrorism tactics. Al Qaeda regularly published *Inspire* and ISIS published *Rumiyah* and *Dabiq*. These terrorism manuals redefined terror training and set the stage for a new generation of terror cells. No longer did training camps run the risk of being exposed and eliminated with an airstrike, but personal can instruct virtually anyone anywhere in the world on how to successfully carry out attacks.

Specifically, the 2013 Boston Marathon Bombers learned how to build the pressure bombs used in their attacks from an online terrorist source (Peter 2017). These instruction manuals have created a new style of homegrown or domestic terrorism. *Inspire* teaches a potential terrorist how to make bombs, remote control detonators, car bombs, and other explosive devices. Moreover, the publication teaches training with handguns, machine guns, and assault rifles. Lastly, the material teaches strategies for breaching security, conducting assassinations, and communicating via encrypted messages (Reed and Ingram 2017). *Rumiyah* provides a less sophisticated methodology of attacks, mainly focusing on using knives and vehicles (ibid).

However, these strategies were applied in attacks where security was too tight to incorporate traditional means of terrorism. These methodologies were responsible for the style of attacks used in the Berlin Christmas market, Westminster and Stockholm attacks (Reed and Ingram 2017, Dearden 2017, Friedman 2017). In addition, the London bombings of 2005 were carried out by those that were instructed by pro Al Qaeda material online that showed them how to construct a bomb (Kirby 2007).

During Attack

ICTs facilitate better communication, coordination, and broadcasting during a terror attack. Terrorists can use cell phones and smart phones to better coordinate their movements. Formerly, terrorist actors needed radios to communicate or had to speak by word of mouth. This severely limited the operational ability of terror actors to coordinate across space, such as large buildings with multiple floors, or across multiple targets. Mass attacks across cities that could be synchronized and adapted to changing circumstance were nonexistent. With the development of ICTs, terrorists now can coordinate extensively and across large spaces, allowing their attacks to grow in scope and magnitude. Multiple locations can be targeted and the attackers can stay in contact with each other's their movements. Moreover, ICTs allow terrorists to track the movement of counterterrorism and police forces. These technologies allow terrorists to communicate in real time and increase the magnitude of their violence, resulting in greater casualties and creating more fear and anxiety.

The terror attacks in 2008 in Mumbai, India demonstrate how terrorists can incorporate ICTs into their attack strategies. The 10 terrorists separated into different teams that used cell phones to communicate during the attacks. Cell phones allowed them to coordinate their strategy

across multiple locations around the city including a café, a hospital, a train terminal, and a large hotel, the Taj Mahal Palace. As attacks were completed in one location, the terrorists were able to regroup in other locations across the city. The terrorists additionally used global positioning systems (GPS) and a satellite phone (Goodman 2011). Moreover, in one location, the Taj Mahal Palace, cell phones allowed the terrorists to move from floor to floor killing hotel guests. Furthermore, the terrorists used cell phones to communicate with other terrorists in Pakistan. In a similar attack in Pakistan on December 1st 2017, the terrorists broadcasted live to their handlers via smartphones attached to their bodies (Mahmood and Jetter 2020). In India, the attackers also used a smartphone, a Blackberry taken from one of the victims, to monitor the social media and news covering their attacks. This added an additional level of coordination to their attacks. The terrorists learned of where and when the police forces were engaging the terrorists. Specifically, in the Taj Mahal Hotel the terrorists killed a counter terrorism officer. “Advances in social networking, mobile computing, and location based services are providing terrorists with real time situational awareness rivaling that available to government forces”, (Goodman 2011)

Post Attack

A major goal of terrorism is to attract attention and publicity. All terrorist groups share in the desire to have their attacks generate maximum publicity and reporting (Hoffman 2017). Terrorists purposefully orchestrate their attacks to create large amounts of coverage. Hacker (1976) asserts that terrorists want to impress and frighten, playing to an audience, in order to solicit participation. Likewise, Terrorism can be characterized as a type of public performance or as a social event that has real and symbolic aspects (Juergensmeyer 2008). Jenkins (1975) suggests that terrorism is a type of theatre, where “attacks are choreographed to attract the attention of the electronic media and the international press.”

The modern media plays a significant role in disseminating information about the attacks of terrorists. Without the media, knowledge of terror attacks will be confined to the immediate victims and geographic location of the attack; the press is salient in carrying and amplifying the messages of terrorist attacks to a broader audience. More media coverage helps to spread fear and anxiety among a population beyond the immediate victims of the attack (Richards 2014). ICTs help to spread the message of an attack much faster than the traditional forms of media. The rapid dissemination and reach of terror attacks can cross national boundaries in minutes reaching a large audience. The speed and reach of attack coverage aids terrorists in disseminating their narrative and message. Conway (2006) asserts that the internet has increased significantly the opportunities for terror networks to gain more publicity. Furthermore, publicity helps to recruit, teach, and train new terrorists (Schmid 1992).

CHAPTER 5

OPERATIONALIZATION OF VARIABLES AND HYPOTHESIS

I create a dataset that will analyze the impact of higher internet penetration rates in states on the number of terrorist attacks. I will measure this relationship using a large N analysis, creating a time series analysis for the years 2000-2018. The early 2000s is a good starting place for my analysis as this was when ICTs (social media, smart phones, etc.) began to develop and spread. The unit of analysis will be the state country-year (N=3041). I will focus my sample on a selection of countries¹ from the World Development Indicators, using negative binomial regression.

I will capture ICT expansion, my primary independent variable, by measuring it as data from internet penetration as a percentage of the population; this data will be drawn from the International Telecommunications Union, Rød & Weidmann (2015), and the World Development Indicators. I will measure my dependent variable, the number of terror attacks a country experiences per year, by gathering data from the Global Terrorism Database.

I also include several control variables in my analysis. I add a measure for GDP. I expect this to be a positive predictor of terrorist attacks; other studies have found an association between terror attacks and GDP (Piazza 2011, Blomberg and Hess 2008). I also include a measure for a country's total population; studies on terrorism have found that states with larger populations have higher volumes of terrorism (Quan 2005). These two indicators are drawn from the World Development Indicators. I have also included data from V-Dem

¹ In my analysis, I have included data for the Palestinian occupied territories of Gaza and the West Bank. While these are not countries, they have partial autonomy and mixed control between Israel and Hamas. Due to the high level of terrorism in these areas they have been included in the analysis.

that measures the degree to which a state censors and controls the internet. Additionally, I have included polity scores to measure democracy. Polity scores run from -10 absolute autocracy to +10 full democracy.

I also include two interactive terms in my analysis: First, I interact internet and polity to better understand the level of democracy and its relationship with internet penetration rates. It can be argued that regimes with lower polity scores have an incentive to prevent the internet from expanding, while more democratic countries expand the internet; these interaction terms can help further understand this. Second, I interact GDP and polity. Generally, it is established that states with larger GDPs have less terrorism as their economies provide more incentives for people to work and less cause to join terror networks. However, some scholars assert that democracies have more terrorism than other countries (Eubank and Weinberg 1994). Most countries with large GDPs are advanced democracies, however this is not always the case. Countries such as Saudi Arabia and Russia have larger GDPs but lower scores on polity. The interaction term between GDP and polity will demonstrate more about the relationship between levels of democracy, economy, and terror attacks. This leads me to my hypothesis:

H1: The expansion of ICTs in states leads to increased amounts of terror attacks

CHAPTER 6

RESULTS

Using the data described above, I estimate a negative binomial regression to test my argument about ICTs, terrorism, and autocracies. The main empirical results are reported in FIGURE 1 below. My findings indicate that ICT expansion is positively associated with more terrorist attacks across states these results are highly significant. These results contrast with what Mahmood and Jetter (2020) find in their analysis that CTs produce a U shape on terrorism with attacks reaching a peak then decreasing. Their analysis measures CTs that includes internet coupled with measures of television and newspapers to measure the ‘total’ flow of information. It is possible that disaggregating ICTs from CTs has a different effect on terrorism.

Moreover, some of these results of my control variables are also significant. Polity scores as a measure of democracy are highly significant. As a nation becomes more democratic, they are more likely to experience a terror attack. Democracies provide more of an incentive to attack as they have more civil liberties such as freedom of speech, association, and movement that reduces the costs of conducting terrorist activities (Eubank and Weinberg 1994, Li 2005, Chenoweth 2010, A. P. Schmid 1992). Furthermore, civil liberties in democracies constrain the government from effectively fighting terrorism (Crenshaw 1981). Publicity, additionally, incentives terror networks to carry out attacks in democracies. Democracies have fewer press restrictions which ensures that terror incidents will receive media coverage and be reported (Li 2005, Hoffman 2017).

Censorship is highly significant; regimes that censor the internet are less likely to

experience terror attacks. Li (2005) found in his analysis that press censorship was not a statistically significant variable in understanding terror attacks. These results indicate that there may be a distinction between press and internet censorship and the prevention of terror attacks. This distinction is also manifested in Mahmood and Jetter (2020) where they do not control for regime regulation of the internet/press as other scholars have (Li 2005, Chenoweth 2010). Mahmood and Jetter (2020) contend that the measures that are traditionally used come from Freedom house press censorship scores and are not modern measures to accurately account for how information is censored in a regime. Therefore, their study does not incorporate any variable to control for or account for government regime CT regulation.

Population is also statistically significant, the larger the population the more likely the country will suffer from a terror attack. This fits with existing literature that expresses countries with larger populations are more likely to experience larger amounts of terrorist violence. Next, my analysis demonstrated that GDP has a negative impact on terrorism. States with larger GDPs are more likely to reduce terrorism (Piazza 2011; Blomberg and Hess 2008). Lastly, I have included marginal effects plot, FIGURE 2, below to demonstrate the predicted effects of increased internet penetration rates on terror attacks.

The two interactive terms I used helped to further analyze these relationships closer. First, was the interaction between polity and internet. The relationship suggests that in fact while an increase in internet does lead to more attacks, polity has a large effect on it. Those countries with lower polity actually experience more terror attacks than those with higher polity. Those countries with higher polity actually see terrorism fall with an increase in internet. However, those with medium range of polity see an increase in attacks from rising internet penetration rates, but not as strongly as states with higher polity scores. The second

interaction was between GDP and polity demonstrated that the higher the polity or the more democratic the regimes is and with a higher GDP the more terror incidents it will experience.

Model 1	
(Intercept)	2.508*** (0.184)
internet	0.029*** (0.007)
polity	0.159*** (0.033)
GDP	-0.000* (0.000)
censor	-0.961*** (0.122)
population	0.004*** (0.001)
internet:polity	-0.006*** (0.001)
polity:GDP	0.000*** (0.000)
AIC	13716.146
BIC	13762.748
Log Likelihood	-6850.073
Deviance	2294.068
Num. obs.	2503

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

FIGURE 1: ICTS & TERROR ATTACKS

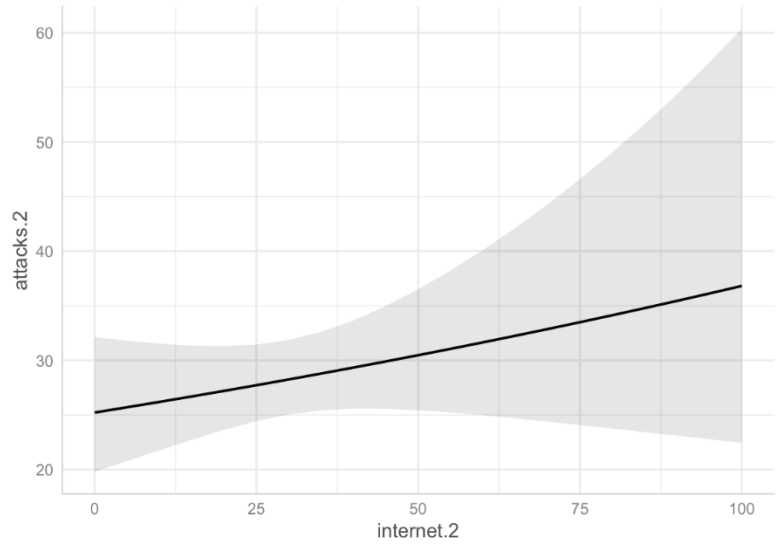


FIGURE 2: PREDICTED VALUES OF ATTACKS

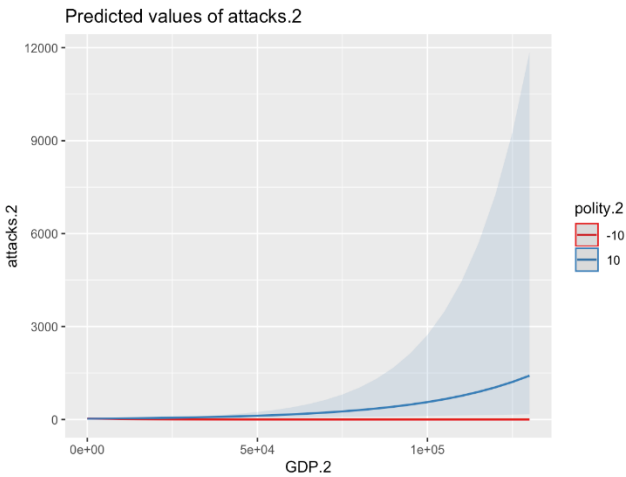


FIGURE 3: INTERACTION TERM 1

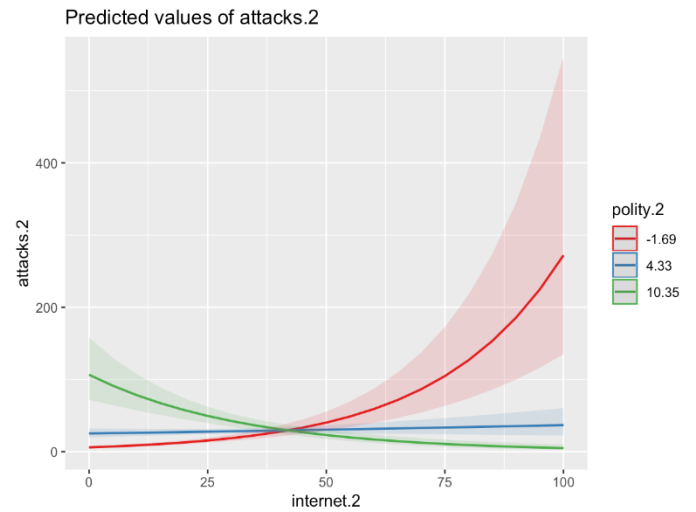


FIGURE 4: INTERACTION TERM 2

CHAPTER 7

CONCLUSION

In this study, I set out to understand the effect of increased ICT usage in states on terror attacks; I created a dataset to help determine this relationship. I hypothesized that an increase in ICTs would correlate with an increase in terrorist attacks. I found statistical evidence to support my hypothesis and theory. This paper demonstrates that the expansion of ICTs in states represents a challenge for leaders in states. While states have economic and political incentives to expand the internet, this expansion is more likely to result in more incidents of terrorism.

ICT expansion empowers terrorist organizations throughout three phases of attacks: before, during, and after. Before, terror organizations have the ability to more effectively plan and coordinate. Websites and social media provide a basis for recruitment and radicalization. Additionally, terror networks can become decentralized, focusing on attacks, and not coordinating with overseers in the organization. Terrorists also now have the ability to better prescreen their targets than never before. ICTs provide large amounts of training manuals that can help prepare for attacks and make them more efficient. During attacks, terror actors can better coordinate their movements, communicate, and out maneuver police forces. After attacks, the broadcasting of the incidents and more publicity will further give strength to the terrorist cause and lead to more recruitment.

This article has future research implications for academics and the policy community. Future research could disaggregate further among polity scores and look at the differentiation between autocracies, anocracies, and democracies to better understand how ICTs play out

among these three groupings of states. Relating to policy, states that are considering expanding the internet should take measures to ensure that terrorists cannot fully use to coordinate and plan attacks

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