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Dissent in digital: the Internet and dissent in authoritarian states

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DISSENT IN DIGITAL:

THE INTERNET AND DISSENT IN AUTHORITARIAN STATES

by

James Douglas Fielder

An Abstract

Of a thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Political Science
in the Graduate College of
The University of Iowa

May 2012

Thesis Supervisor: Associate Professor Brian H. Lai

ABSTRACT

Does the Internet facilitate anti-regime dissent within authoritarian states? I argue that the Internet fosters dissent mobilization through three factors: distance, decentralization and interaction. First, the Internet fosters dissent mobilization by allowing protesters to communicate relatively cheaply and instantaneously over great distances. While other communication mediums also reduce distance costs, the second factor, decentralization, allows dissenters to use the Internet to evade state controls and reduces the state's ability to restrict information flows. Third, the Internet's Interactive nature allows users to both become consumers and producers of information. Interactivity also fosters trust between users that can evolve into offline action.

However, the empirical record consists almost entirely of open source news reporting and qualitative studies, and there are few clear theoretical links between the traditional dissent and repression literatures and recent Internet mobilization theories. My goal in this project is to place a generalizable theory of Internet-mediated dissent within traditional mobilization context and more recent communication, computer science and legal literatures. I frame my theory of Internet mediated dissent through three components. The first component is Internet access as a mobilizing structure, in which I posit that Internet access creates conditions for social mobilization that are difficult for regimes to counter. The second component is the effect of Internet censorship on Internet-facilitated dissent. For the third theoretical component, I assess that despite the type of censorship, increased Internet use eventually overwhelms the regime's capacity to censor information. I test my theoretical components through a series of large N cross national time series negative binomial regressions spanning 1999-2010.

In the first test, I find that increased Internet access increased the likelihood of protest in non-democratic states. Results of the second tests are mixed: technical censorship has no effect on protest, soft controls decreased incidence of protest, and combined technical and soft programs increase the likelihood of protest, albeit the substantive effect is slight. In the third test, I hypothesize that Internet use eventually crosses a user threshold after which censorship is no longer effective. The results of the third test suggest that censorship is not effective regardless of Internet access levels. However, the influence of Internet use on protest tapers off once a specific threshold is reached.

The dissertation proceeds as follows: in Chapter 2, I present literature review that frames my research question within previous empirical work. Next, in Chapter 3 I propose and illustrate my theory of Internet-mediated dissent. In Chapter 4, I test whether or not incidents of anti-regime protest increase as Internet use increases inside non-democratic states. I build on these results in Chapter 5, in which I test whether technical filters, soft controls or a combination of methods decrease the likelihood of protest inside non-democratic states, followed by a test for whether increasing Internet use overwhelms censorship programs. Finally, in chapter 6 I summarize my findings, discuss data complications, offer ideas for future research, and discuss the implications of this project.

Abstract Approved: _____

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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph.D. thesis of

James Douglas Fielder

has been approved by the Examining Committee
for the thesis requirement for the Doctor of Philosophy
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David D. Perlmutter

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William M. Reisinger

_____

Caroline J. Tolbert

To my parents

Cyberspace. A consensual hallucination experienced daily by
billions of legitimate operators, in every nation, by children being
taught mathematical concepts...A graphic representation of data
abstracted from the banks of every computer in the human system.
Unthinkable complexity. Lines of light ranged in the non-space of
the mind, clusters and constellations of data.

William Gibson, Neuromancer

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ABSTRACT

Does the Internet facilitate anti-regime dissent within authoritarian states? I argue that the Internet fosters dissent mobilization through three factors: distance, decentralization and interaction. First, the Internet fosters dissent mobilization by allowing protesters to communicate relatively cheaply and instantaneously over great distances. While other communication mediums also reduce distance costs, the second factor, decentralization, allows dissenters to use the Internet to evade state controls and reduces the state's ability to restrict information flows. Third, the Internet's Interactive nature allows users to both become consumers and producers of information. Interactivity also fosters trust between users that can evolve into offline action.

However, the empirical record consists almost entirely of open source news reporting and qualitative studies, and there are few clear theoretical links between the traditional dissent and repression literatures and recent Internet mobilization theories. My goal in this project is to place a generalizable theory of Internet-mediated dissent within traditional mobilization context and more recent communication, computer science and legal literatures. I frame my theory of Internet mediated dissent through three components. The first component is Internet access as a mobilizing structure, in which I posit that Internet access creates conditions for social mobilization that are difficult for regimes to counter. The second component is the effect of Internet censorship on Internet-facilitated dissent. For the third theoretical component, I assess that despite the type of censorship, increased Internet use eventually overwhelms the regime's capacity to censor information. I test my theoretical components through a series of large N cross national time series negative binomial regressions spanning 1999-2010.

In the first test, I find that increased Internet access increased the likelihood of protest in non-democratic states. Results of the second tests are mixed: technical censorship has no effect on protest, soft controls decreased incidence of protest, and combined technical and soft programs increase the likelihood of protest, albeit the substantive effect is slight. In the third test, I hypothesize that Internet use eventually crosses a user threshold after which censorship is no longer effective. The results of the third test suggest that censorship is not effective regardless of Internet access levels. However, the influence of Internet use on protest tapers off once a specific threshold is reached.

The dissertation proceeds as follows: in Chapter 2, I present literature review that frames my research question within previous empirical work. Next, in Chapter 3 I propose and illustrate my theory of Internet-mediated dissent. In Chapter 4, I test whether or not incidents of anti-regime protest increase as Internet use increases inside non-democratic states. I build on these results in Chapter 5, in which I test whether technical filters, soft controls or a combination of methods decrease the likelihood of protest inside non-democratic states, followed by a test for whether increasing Internet use overwhelms censorship programs. Finally, in chapter 6 I summarize my findings, discuss data complications, offer ideas for future research, and discuss the implications of this project.

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INTRODUCTION

The Internet interprets censorship as damage and routes around it.

Internet activist John Gilmore, TIME

Does the Internet facilitate anti-regime dissent within authoritarian states? In this

dissertation, I argue that the Internet fosters dissent mobilization through three factors:

distance, decentralization and interaction. First, the Internet fosters dissent mobilization

by allowing protesters to communicate relatively cheaply and instantaneously over great

distances. While other communication mediums such as the radio and telephone also

reduce distance costs, the second factor, decentralization, allows dissenters to evade state

controls and reduces the state's ability to restrict information flows. Third, the Internet's

Interactive nature allows users to both become consumers and producers of information.

Interactivity also fosters trust between individual users and online communities that can

evolve into offline action. To frame these three factors with a popular military

catchphrase, the Internet functions as a "force multiplier" for social movements inside

authoritarian states.

As a tool of mass communication, the Internet enables organizations and individuals

to breach barriers of geographical distance, cost, censorship, and even personal

accountability (Brunsting and Postmes 2002; Mossberger, Langman 2005; Tolbert and

McNeal 2008). The Internet allows users across the network to exchange information

and ideas through text, link exchanges, multimedia file sharing, and real time voice and

video streaming. Such rapid and open communication helps shape perceptions and

allows social movements to circumvent the state and directly address national and international audiences (Dartnell 2003).

Information and communication technologies, including the Internet, have fostered rapid, inexpensive and reliable communication and collaboration. Such channels provide states with tremendous potential gains, but also pose risks for regimes. Through the 1990s, numerous Internet pundits claimed that cyberspace was beyond the reach of government control, since information flowed freely across borders; and thanks to the Internet's decentralized routing structure, information was all but untraceable. Others propose that the Internet's distributed architecture allows movements to flourish and ultimately challenge authoritarian barriers in the same way as the telegraph, lithograph, and newspapers during the 18th and 19th centuries (Deibert 2003; Langman 2005).

Older electronic communication mediums have been used to organize, mobilize and advertise social movements, such as leveraging global television networks in Eastern Europe protests (1980s), fax machines in China's Tiananmen Square uprising in 1989, and amateur video during the Los Angeles Rodney King riots of 1992 (Chadwick 2006). The Internet, in turn, empowers weaker, geographically dispersed and niche social movements by providing cheap and real-time communication. Moreover, due to the Internet's collaborative and decentralized nature, ordinary citizens and the politically marginalized are no longer limited to top-down, "one-to-many" mainstream media outlets (Kellner 1999; Mitra 2001; Chadwick 2006). For example, "the Great Firewall of China" failed in 2001 when internet users in Jiangxi province mounted an online campaign criticizing the government over a schoolhouse explosion. Despite censorship efforts, the

campaign brought the issue to national-level importance and induced the government to make a public apology and reparations (Kalathil and Boas 2003).

More recently, following perceived voting irregularities in the June 2009 Iranian presidential election, supporters for challenger Mir-Hossein Mousavi poured into the streets in violent protests reminiscent of the 1979 revolution. However, unlike the 1979 revolution, the June 2009 protests were broadcast online in real time through social media networks. Although quick to shut down the national telephone system, Iran's authoritarian regime was slow in blocking Internet-based outlets, and Iranian protesters flooded the web with a continuous stream of *Twitter* links, *Flickr* photos, and *Facebook* updates over landline and wireless networks. When Iran finally responded, the regime used deep packet inspection of all information passing through the country's Internet gateways. In short, deep packet inspection is a thorough analysis of every data packet[1] entering the network (Kassner 2008). Since all information was flowing through a relatively small choke point, deep packet inspection brought Internet speeds to a crawl throughout the state, which effectively took the entire country offline for 20 hours (Howard 2010).

In response, anti-regime protesters used proxy servers, anonymizers and other censorship circumvention tools to maintain information flows. Ultimately, organizers mobilized hundreds of thousands of people to a rally in central Tehran in defiance of an Interior Ministry ban on such actions (Quirk 2009). Iran opposition leaders further argued that Internet applications allow them to spread messages farther and organize larger rallies (Howard 2010). Although the regime quickly cracked down on Internet

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[1] A data packet is the basic unit of information transmitted within the Internet's TCP/IP communication protocol. I discuss TCP/IP further in Chapter 2.

outlets, the system remains porous: only a complete--and unrealistic--shutdown of the entire Iranian communications network can halt Internet communication.

Despite circumvention tools available to protesters, states still attempt to assert dominance over information flows. In particular, authoritarian regimes have realized how powerful a tool the Internet is for organizing civil unrest. Regime authorities can record user logs, conduct software sweeps and use other tools to track information flows (Naughton 2001; Lessig 2006; Clapp 2007). Contrasting literature identifies technical and social advantages authoritarian regimes have over their own ICT architectures, which allows the state to both control data and monitor communications while simultaneously applying *soft*, or psychological controls to maintain social compliance (Danitz and Strobel 1999; Bennett 2003; Kalathil 2003; Boas 2006).

Lessig (2006) also argues that effective Internet regulation requires three pieces of information: knowing who someone is, where they are, and what they are doing. While the relative anonymity of the Internet makes it difficult to find the three pieces of information, various technical controls makes it possible for determined authorities to find users with almost pinpoint accuracy. In sum, authoritarian regimes combine technical and social filtering tools not just to control access, but to overwhelm, discredit and demoralize the opposition and completely dominate the public information sphere. Moreover, combined social and technical filtering methods are difficult for all but the most technically savvy of users to circumvent.

<u>Contribution to the Discipline</u>

From an objective academic standpoint, this project contributes to the political science discipline by bridging theoretical and empirical gaps. While the above reports are

provocative, the empirical record for the Internet's effects on dissent and repression

consists almost entirely of open source news reporting and qualitative case study

analysis. The news reporting increases the Internet discourse, but does offer objective,

quantitative and controlled evidence on the efficacy of Internet-facilitated dissent or the

methods regimes use to stifle online malcontents. In turn, the qualitative evidence offers

a far more objective picture; yet, the cases are discussed as discrete incidents and thus are

difficult to generalize to broader populations. Additionally, there are few clear

theoretical links between the traditional dissent and repression literatures and recent

Internet mobilization theories; nor does recent Internet-mobilized dissent literature

clearly draw on traditional mobilization theories. The goal of my project, then, is to place

the Internet within traditional mobilization context and then conduct one of the first series

of systemic tests of Internet-mediated dissent and repression.

   From a normative policy standpoint, recent event in the Middle East, collectively

referred to as the Arab Spring, illustrate the efficacy of the Internet as a mobilizing

structure. However, protest events in Iran, Libya and Syria rapid escalated from verbally

contentious to physically violent interaction between protesters and regimes. The

violence became part of the mobilizing discourse as text reports, images, video and other

multimedia reports spread across the Internet to wider audiences. Understanding the

causal mechanisms of Internet-mediated dissent will help policymakers more quickly

gauge and react to regional and systemic developments.

<u>Literature Summary</u>

   A social movement's repertoires of contention, or available means of protest, are

determined by the interaction of three factors: mobilizing structures, political opportunity

structures, and collective action (or, cultural) frames (McAdam, McCarthy and Zald 1996; Davenport 2005). First, mobilizing structures consist of formal organizations and everyday social interactions, including organizational leadership and connective structures that link the group and foster coordination (Zald and McCarthy 1987; McAdam 1988; Diani 1995; Gould 1996; Tarrow 1998). Social movements also use geographic and symbolic spatial structures to articulate grievances, define the group's collective identity, preserve group norms, and reshape mobilization structures (Giddens 1984; Rasler 1996; Sewell 2001; Johnston 2005). Second, political opportunities are the static or dynamic opportunity structures available to social movements (affected by constraints), including events that lower the costs of collective action and trigger social networks and collective identities into action around common themes and symbols. Third, collective action frames are cultural factors that provide ideological inspiration and motivation for group identity, claims and action (Snow and Benford 1992; Gamson 1995; Tarrow 1998; McAdam, et al. 2001; Davenport 2005).

Next, the threshold and bandwagon models suggest that once an unspecified threshold of participants is crossed, the costs of movement mobilization, momentum and sustainment decline (Muller and Opp 1986; Rasler 1996; Carey 2006). For dissidents in a coercive state, then, power lies in both the raw number of participants and participant tolerance of state repression: mobilization, then, transforms the conflict into a test of movement and regime organizational strengths (Francisco 1995; 2000). However, resources will not necessarily result in sustained social movement: ideological unity and organizational capacity suffer if movements lack networks of interpersonal trust, collective identities and shared perceptions of injustice: Culture functions as a collective

action frame though which groups identify, define and articulate shared anti-regime grievances (Tarrow 1998; McAdam, Tarrow 1998; Tarrow and Tilly 2001).

Modern social movements depend on information flows. The spread of previous communication mediums such as newspapers diffused information across class lines and linked urban centers with rural peripheries, and such diffusion also significantly reduced the time between publishing and reception. Mass communication shifted previously localized and specific repertoires of collective action to new repertoires that were cosmopolitan, modular and autonomous in nature, creating the conditions for organized, cross-cleavage, and persistent social movements (Melucci 1994; Tarrow 1998; Rucht 2004). The traditional dissent and repression literature, however, says little about how the Internet alters a movement's repertoires of contention. In contrast, communication and law scholars have theorized that the Internet reduces protest costs and increases protest space by acting as a decentralized, rapid and relatively inexpensive "architecture of participation [that] challenges or alters dominant, expected or accepted ways of doing society, culture and politics" (Atton 2004, pp. 19; also, Brunsting and Postmes 2002; Deibert 2003; Chadwick 2006; Hanson 2008; Lievrouw 2011; West 2011).

Thus, the Internet appears theoretically well-suited for protest mobilization. Thanks to the TCP/IP communication protocol (discussed further in chapter 2), users can connect to the Internet using numerous systems (desktops, laptops, cell phones, Internet-capable printers and cameras, etc.). Packet switching routes communication through paths of least resistance, making information flows difficult to thwart. Users can communicate in real time in a variety of formats, from basic text messaging and email to advanced voice-over Internet protocol (VOIP) communication and simultaneous editing of shared

geospatial information systems. Yet, authorities in many countries patrol the Internet just as they do physical public spaces, and states such as China, Iran and Myanmar have not hesitated to arrest and punish online dissidents (Kulikova and Perlmutter 2007; Neuman 2011). Indeed, the perception that authorities are on the electronic prowl may have a chilling effect on online dissent, as seen in China and other authoritarian states (Deibert, Palfrey, Rohozinski, and Zittrain 2008). Analysts of radical protest movements further assert that some groups avoid the Internet and rely on traditional face-to-face communication to avoid scrutiny (van de Donk, Loader, Nixon, and Rucht 2004). Other authoritarian regimes, such as Cuba, have put less effort into censorship and focus instead on controlling who has access to the Internet in the first place (Kalathil and Boas 2003).

<div align="center">Theory, Research Design and Findings</div>

In this project, I propose a theory of Internet-mediated dissent composed of three theoretical components. The first component is Internet access as a mobilizing structure. With the understanding that mobilizing structures consist of interpersonal social networks and associate communications, I assess that the Internet serves as a mechanism for linking groups and fostering communication across greater distances more rapidly and cheaply than other communication channels. For example, Web 2.0 tools such as YouTube and Twitter allowed Arab Spring protesters to cheaply and instantaneously spread information and organize activities. I posit that Internet access creates conditions for social mobilization which, if well organized, are difficult for regimes to counter. Despite attempts at social control, as a state's Internet user base grows so does the odds that users will challenge social boundaries and use the Internet to mobilize dissent. I

therefore expect that Internet diffusion as quantitatively measured through the number of Internet users may be correlated with increased dissent against authoritarian regimes.

The second theoretical component is the effect of Internet censorship on Internet-facilitated dissent, which aligns with increased threat and reduced political opportunity in the traditional model. As discussed previously, regimes have a wide variety of technical and social censoring tools at their disposal: technical controls include tools such as firewalls, URL blockers, and DNS tampering, while soft controls include psychological measures such as physical monitoring of public Internet spaces and playing off of shame, fear, or other social mores to discourage political Internet use and thus reduce dissent opportunity structures.

For the third theoretical component, I assess that despite the type of censorship, increased Internet use eventually overwhelms the regime's capacity to censor information flows. Some argue that total Internet control is impossible, even when filtering all traffic at major backbone servers, given the rapid proliferation of Internet-enabled systems (Deibert, et al. 2008; Hanson 2008). As Internet use increases it becomes exceptionally difficult for states to control, as most technical filters can be easily circumvented by motivated users (Froomkin 2003; Boas 2006). Kulikova and Perlmutter (2007) also suggest that the Internet threshold may depend on the quality rather than quantity of users. In their study of blogs use during Kyrgyzstan's 2005 Tulip Revolution, they noted that only 10-12 percent of the population had Internet access.

I test my theoretical comments through three large N cross national time series regressions, spanning 1999-2010 across 88 countries. I employ negative binomial regression since the dependent variable protest is an overdispersed count variable

consisting predominantly of zero cases. I operationalize protest using the variable anti-government demonstrations from CNTS (2011). For my first test, I operationalize my key independent variable Internet use through the World Bank (2012) variable Internet use per 100 people. For my second and third tests, I operationalize my key independent variables technical filtering, soft (psychological) controls, and combined technical and soft controls with data from the OpenNet Initiative (ONI 2011). To control for regime type I use the Polity IV scale (Marshall, Gurr and Jaggers 2011). The control for human rights abuses I use U.S. Department of State data from the Political Terror Scale (Gibney, Cornett and Wood 2008). Finally, I use data from World Bank (I4CD 2012) to control for economic growth, education, population, and state coercive capacity.

In the first test consisting of two models, I find that increased Internet access increased the likelihood of protest in non-democratic states. Results of the second test spanning three models were mixed: on one hand, technical censorship by itself had no influence on protest, while soft controls decreased incidence rates of protest. Additionally, the multiplicative effect of both types of censorship was not statistically significant, while the additive effect actually resulted in a very slight increase in protest. In the third test, I hypothesized that Internet use would eventually cross a threshold after which censorship was no longer effective. I find partial support for the third hypothesis, in that increasing Internet use likewise increases the likelihood of protest despite controlling for censorship. However, the increase tapers over once states reach 30 Internet users per 100 people.

Furthermore, three control variables remained consistently strong across almost all the empirical tests. Both economic growth and coercive capacity decreased the likelihood of protest, while state population levels increases the likelihood of protest.

Overall, the results of my empirical tests suggest that the Internet is a formidable protest mobilizing structure. In turn, Internet censorship measures currently do not seem to restrict social movement opportunity structure. However, of the two censoring methods--technical and soft--soft controls appear to have the greatest chilling effect on Internet mobilization.

Roadmap

   The dissertation proceeds as follows: In Chapter 2, I present a multifaceted literature review that frames my research question within previous empirical work. Next, in Chapter 3 I propose and illustrate my theory of Internet-mediated dissent. I further break my theory down into three theoretical components tested through five hypotheses. In Chapter 4, I discuss the operationalization, design, test, and results of my first hypotheses, or that incidents of anti-regime protest increase as Internet use increases inside non-democratic states (H1). I build on these results in Chapter 5, in which I operationalize and four hypotheses. The first three consist of a related series: technical filters (H2a), soft controls (H2b) or a combination of methods (H2c) decrease the likelihood of protest inside non-democratic states. I also operationalize and test a censorship model conditioned by varying levels of Internet use (H3), with the expectation that increased Internet use will increase protest regardless of censorship. Finally, in chapter 6 I summarize my findings, discuss data complications, offer ideas for future research, and finally discuss the implications of my findings for political science and policy making.

CHAPTER 2

LINKING CONCEPTS: DISSENT, CULTURE, THE INTERNET, AND CENSORSHIP

Understanding if and how Internet use facilitates anti-regime dissent inside authoritarian states requires discussing literatures from political science, communications, law, and computer science. I begin with the traditional dissent and repression literature, with particular focus on two research programs: rational choice theory and resource mobilization. The second literature discusses cultural and societal conditioning effects on Internet communication, with emphasis on social networks and interpersonal trust. The third literature aligns dissent and cultural/societal literatures with discussion on the Internet's technical capabilities and theoretical influences on social movements. The final literature examines the tools and methods authoritarian regimes use to technically and/or psychologically prevent Internet-mediated social movements from coalescing.

<u>Dissent and Repression in Brief</u>

Anti-regime dissent occurs when individuals are threatened with costs they cannot bear, following incidents that outrage their sense of justice, or when individuals gain the resources necessary to challenge compliance (Gamson 1992; Tarrow 1998). Pockets of dissent can coalesce into organized social movements, which are disruptive actions targeted against public authorities that transgress conventional norms of participation; that consist primarily of purposive tactics and strategies rather than emotions to shift power from status quo; and with organizational emphasis on group activity rather than elite leadership (Knocke and Wisely 1993). In turn, repression consists of state actions designed to maintain regime stability through restriction or violation of human rights and civil liberties (Davenport 2000, 6). Repression incorporates a broad range of actions,

including negative sanctions such as restrictions on free speech, torture, political

imprisonment, and widespread state terror (McPhail and McCarthy 2005; Carey 2006).

<center>Rational Choice Explanations for Dissent and Repression</center>

Rational choice theory seeks to explain how collective action is possible given the

assumption that individuals are guided by self-interest (Olson 1965; Moore 1995; Tarrow

1998; Opp 2009). Olson (1965) presents this as the collective action problem, or that no

self-interested person will contribute to production of a public good unless the group is

small, or there is coercion or some other condition that forces individuals to act in their

common interest (pp. 2). A crucial concept of Olson's (1965) argument is the idea of

collective goods, or , "any such good that, if any person X_i in a group $X_1,\ldots,X_i,\ldots,X_n$

consumes it, it cannot feasibly be withheld from the others in that group" (pp. 14).

Moreover, as the group increases in size, an individual's participation will have

decreasing impact on goods provision; but since it is a collective good, everyone benefits

from it whether or not they incurred personal costs to provide it. Therefore, it is irrational

to expend personal resources on collective goods when one's individual contribution has

negligible impact on production but they reap the benefits regardless. This presents the

free rider problem, or when individuals do not contribute to public good production but

still receive benefits (Olson 1965; Moore 1995; Tarrow 1998; Ostrom 2000).

However, dissent groups can overcome the collective action problem by offering

selective incentives, or goods that can be withheld from individuals who do not

participate in their production. Organizations with the means to offer potential members

selective incentives will be able to mobilize a large number of people (Tullock 1971;

Silver 1974; Finkel, Muller and Opp 1989; Opp 1994; Moore 1995). In turn, dissent

group leaders who can convince free riders that their contributions will directly improve collective good production will be able to mobilize large numbers of people (Popkin 1979; Chong 1991). Other scholars, however, contend that norms can serve the same purpose as leadership, arguing that groups provide solidarity which discourages free riding (Fireman and Gamson 1979; Coleman 1990; Oberschall 1994; Moore 1995).

Rational choice theorists additionally assert that if individuals expect repression for participation, they will be less inclined to join protest actions (Olson 1965; Hardin 1982). Mason (1989) and Mason and Krane (1989) further posit that repression will be effective when regimes both apply coercion and offer selective incentives. However, if the regime cannot offer a sufficient level of selective incentives, it loses its legitimacy and further repression will likely encourage individuals to join dissent groups. States that also apply indiscriminate repression may also find that their coercive efforts backfires, as instilling indiscriminate fear amongst citizens increases the costs of not joining dissent groups (DeNardo 1985). Dissent groups also react to harsh repression by adapting their tactics. Through adaptation, dissidents formulate new dissent strategies that are designed to reduce their own risks while at the same time surprising the regime (Lichbach 1987, 1995; Francisco 2001; Ferrara 2003).

<u>Resource Mobilization Theory and the Political Process Model</u>

Scholars challenged rational choice with the resource mobilization theory, or that collective actions are explained through variation in resources, organizational strengths, and state-imposed constraints and opportunities (Gurr 1970; McCarthy and Zald 1977; Khawaja 1993; McAdam, McCarthy, and Zald 1996). Collective action is thus determined by careful cost-benefit calculations on the part of potential participants, and

individuals are likely to participate if the benefits from participating are greater than the costs (Obershall 1973; Tilly 1973; Muller and Opp 1986). In similar fashion to rational choice, actors in resource mobilization models continuously evaluate the costs and benefits of their actions, choosing to act when gains are expected. On one hand, Lichbach (1987) posits that low levels of repression initially reduce resources available to dissent movements and thus inhibit their activities, making it more difficult for movements to attract and hold followers. Lichbach (1995) states, "Dissidents' beliefs and expectations about their potential successes and failures are crucial to collective dissent: rational dissidents do not participate in losing causes (pp. 62)." On the other hand, real or perceived regime weakness increases a dissident's subjective probability of winning and thus attracts participants (Ferrara 2003).

In turn, the political process model extends the resource mobilization theory by focusing on informal mobilizing structures over formal organizations and, "stresses the crucial importance of expanding political opportunities as the ultimate spur to collective action"(McAdam, McCarthy and Zald 1996, 7). Political opportunities are based on the interaction of the dissent movement with both the institutional and informal political characteristics embedded within given states. Political opportunities can thus also be viewed through constraints, or characteristics that prevent movements from taking action.

<u>Resource Mobilization Space and Structure</u>

The resource mobilization theory additionally considers spatial and structural relationships between dissent and repression. Social movements use geographic and symbolic spatial structures to articulate grievances, define the group's collective identity, preserve group norms, and reshape mobilization structures (Giddens 1984; Rasler 1996;

Sewell 2001; Johnston 2005). For example, Tahrir square served as an open and convenient geographic space that favored mass protest strength, but also as a space that symbolized the anti-Mubarak movement (Sewell 2001; Antoun 2012). Relatedly, communications theorists describe spatial structure through the concept of the public sphere, or, "communicative spaces that permit unfettered circulation of information, ideas, and links between citizens and the societal elites," and that define boundaries of communicative freedoms and constraints (Dahlgren 2005, 148; also, Habermas 1989).

But, authoritarian states can also transform spatial structures, as demonstrated by China's conversion of Tiananmen Square from a physical and symbolic movement space into a killing ground. Dissidents working inside constricted spatial boundaries, however, have three means of maintaining protest space. First, dissidents can use gossip, rumor and other forms of interpersonal communication to surreptitiously spread information (Zha and Perlmutter 2009). Scott (1990) refers to this method as "the hidden transcript," or use of small group communication to evade state-level controls. Second, protesters can use a form of underground publication called *samizdat*--literally, "do the publishing oneself"--as a means of spreading dissent information (Kulikova and Perlmutter 2007; Zha and Perlmutter 2009)[2]. Third, dissidents can embed allusions, metaphor, satire, and symbols within communication mediums, such as visual art, music and poetry (Zha and Perlmutter 2009). Furthermore, ambiguity is the key to success with symbolism: symbolic appeals must not only attract and inspire target audiences, but also remain vague enough that state censors either remain unaware, or allow the symbols to remain as

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[2]The term samizdat originates from dissent literature published in the Soviet Union in the 1950s (Telesin 1973; Kulikova and Perlmutter 2007).

innocuous "release valves" for voicing opinions. In sum, the battle between dissent and coercion can thus been seen as a battle to seize protest or coercive spatial structures.

<div align="center">Contentious Politics: a Synthesis of Models</div>

In the mid-1990s, McAdam, McCarthy and Zald (1996) proposed a synthesis of previous theories into a model that links three broad sets of factors for analyzing a social movement's *repertoires of contention*, or available means of protest: mobilizing structures, political opportunity structures, and collective action (or, cultural) frames. First, mobilizing structures consist of formal organizations and everyday social interactions, including organizational leadership and connective structures that link the group and foster coordination (Zald and McCarthy 1987; McAdam 1988; Diani 1995; Gould 1996; Tarrow 1998).

Second, political opportunity structures are the static or dynamic opportunity structures available to social movements (affected by constraints), including events that lower the costs of collective action, reveal potential movement allies, demonstrate how and where elites and authorities are most vulnerable, and trigger social networks and collective identities into action around common themes and symbols. Additionally, more individuals and groups are encouraged to join as initial participants achieve gains against their target (Tarrow 1998).

Third, collective action frames are cultural factors that provide ideological inspiration and motivation for group identity, claims and action (Snow and Benford 1992; Gamson 1995; Tarrow 1998; McAdam, et al. 2001; Davenport 2005). Collective action frames develop through the processes of injustice, agency and identity, with injustice being the grievance that inspires social change, agency the development of share consciousness that

collective action can alter injustice conditions, and identity the process of defining the movement "us" versus the targeted "them" (Snow and Benford 1992; Gamson 1995).

<div align="center">Dissent versus Repression: The Threshold</div>

Higher and higher levels of repression bring fewer rewards to the regime and increased risk of dissent. Increasing repression further frustrates demands and perceptions of injustice, meaning increased repression (both in severity and time) increases the likelihood of dissent (Gurr 1971; Lichbach 1987; Gartner and Regan 1996). Opp and Ruehl (1990) also argue that any processes that raise protest incentives encourage individuals to join. Such processes include individual exposure to repression, perception of repression illegitimacy, and membership in groups that support protest (also, White 1989; Rasler 1996). Increased demands and incentives dramatically increase available opportunity structures (particularly available information), which can result in rapid movement expansion over a very brief period of time (Hill and Rothschild 1992; Tarrow 1998). Thus, while the strength of coercive agents initially determines available movement strategies, a protest movement can grow to the point that coercive structures can no longer effectively react.

From a rational choice perspective, Goldstone (1994) assumes that the probability of group success (P) is a function of state strength, elite cohesion and the number of people that the group can mobilize (also, Moore 1995). He then assumes that the group leaders will identify a threshold value, P^*, such that if $P > P^*$, dissent leaders will be able to successfully mobilize their groups. This also suggests that the probability of success increases for other groups: while the perceived value of P varies across leaders, increased mobilization likewise increases the value of P for more and more groups. From this

analysis, Goldstone also concludes that ties across groups are critical to the construction of revolutionary coalitions.

Lohmann (1992, 1994) finds similar results with her informational cascade model. In her model, citizen preferences differ locally, but similar ideas will be shared across the population. Dissent is kept in check through these local differences and uneven knowledge about regime policies, which the regime can attempt to reinforce by manipulating available information. However, should protest erupt, the protests become information sources for observing nonparticipants. Nonparticipants can update the preferences based on this new information and then join the protests themselves; and as more people join, the rate at which other nonparticipants are exposed to protest information increases dramatically.

Similarly, the threshold and bandwagon models suggest that once an unspecified threshold of participants is crossed, the marginal costs of movement mobilization, momentum and sustainment decline (Muller and Opp 1986; Rasler 1996; Carey 2006). At the individual level, Karklins and Petersen (1993) argue that individuals differ in tipping points for participation. These tipping points are lowest for professionals and students, while laborers, government employees, and party supporters face higher costs. As a dissent movement expands, though, the progressive inclusion of different individuals and then social groups determines the realization of larger group tipping points, leading to a rapid increase in participation. In these situations, "successful collective action becomes a self-fulfilling prophecy" (Lichbach 1995, 115; also, Lohmann 1994; Ferrara 2003; Francisco 2005).

For dissidents in a coercive state, then, power lies in both the raw number of participants and their tolerance of state repression: mobilization transforms the conflict into a test of movement and regime organizational strengths (Francisco 1995; 2000). For example, the former Czechoslovakia had sufficient coercive capacity to effectively repress protests under 500,000 people between 1986 and 1989. The regime's repressive efforts faltered, however, when the organizational strength, group size and geographic distribution of protesters exceeded the regime's coercive capability (Francisco 1995).

The Roles of Culture and Society in Dissent

The traditional dissent and repression literature suggests that protesters require available resources and protest space in order to develop effective repertoires of anti-state contention. If costs are too high, then dissent movements will not reach the participatory threshold that reduces cost and increases momentum. However, available resources and protest space will not necessarily result in sustained social movement: ideological unity and organizational capacity suffer if movements lack networks of interpersonal trust, collective identities and shared perceptions of injustice (Tarrow 1998).

Culture also has opposing effects on social movement development. On one hand, cultures are usually assumed to be stable over time, which can discourage social movement development (Johnston and Klandermans 1995). On the other hand, social movements can act as catalysts for generating new cultural resources and identities that suddenly shift cultures into new directions (Friedman and McAdam 1992; Swidler 1995). Dissent mobilization, then, may be conditioned by cultural and interpersonal interaction patterns. This section, then, discusses how a state's political culture and civil society influence dissent repertoires of contention.

Political Culture

Culture functions as a collective action frame though which groups identify, define and articulate shared anti-regime grievances (Tarrow 1998; McAdam, Tarrow and Tilly 2001). Almond and Verba (1963) define political culture as culture based on communication and persuasion, consensus, diversity, and moderated acceptance of change. Their original definition was initially associated with democratization: that is, political culture based on consensus and moderated acceptance of change either fosters and sustained democratic institutions, or is influences by the institutions themselves. Others, however, contend that autocracies also require some form of participation to determine citizen wants and needs, even if autocracies engage publics largely for indoctrination (Dalton and Klingemann 2007; Fuchs 2007).   More recently, Howard (2010) also posited that, "in authoritarian context, 'political culture' can mean range of social activities that take on political importance in societies where regimes/elites actively manage cultural interaction (pp. 14)."

This leads to two additional assumptions: first, a country's political culture is derived from attitudes of citizens (again, not necessarily democratic); and second, relevant cultural attitudes are learned and internalized through community socialization (Almond and Verba 1963; Fuchs 2007). Almond (1990) further articulates the importance of *legitimacy* and *trust*, with legitimacy existing when individuals perceive that the regime conforms to their personal principles, and trust growing from personal experiences with regime actions and policy outcomes (Easton 1965, Mishler and Rose 2002).

Political culture studies have also been extensively influenced by Inglehart's (1977, 1988, 1997) postmaterialism theory, in which he posits that economic development

influences transition from traditional cultural values (materialist) to self-expression values (postmaterialist) (also, Inglehart and Welzel 2010). He further posits that political culture variables aggregated at the state level align along two dimensions: a traditional versus secular-rational values dimension, and a survival versus self-expression values dimension, as illustrated in Figure 2.1. Traditional and survival (materialist) cultures emphasize religion, national pride, obedience and respect for authority, while secular-rational and self-expression cultures (postmaterialist) emphasize trust, tolerance, political activism, gender equality, freedom of expression, civil society, and citizen participation (*ibid*). In particular, Welzel and Inglehart (2009) expect that dissent against authoritarian control will increase when cultural values shift from traditional and survival dimensions to secular-rational and self-expression dimensions.

<div align="center">Civil Society and Social Capital</div>

McAdam, Tarrow and Tilly (2001) consider social interaction to be the "locus and basis" of anti-regime contention (pp. 126). Dense social networks enriched through interpersonal interaction and trusts create sustainable and adaptable communicative networks that function as mobilization and opportunity structures. Political interpersonal interaction is broadly viewed through the concept of civil society, or the totality of non-state institutions, organizations and civic associations functioning in the public sphere (Wnuk-Lipinski 2007). These are grassroots organizations which are relatively autonomous from the state and based on voluntary membership. Associations form without a direct relationship to the pursuit of political objectives, but draw in member's political experiences and are directed towards group rather than private interests (Verba, Nie, and Kim 1978). While typically viewed through democratization, civic participation

can also develop within autocratic systems if funneled through institutionalized channels: authoritarian states often create state-run associations to quell dissent and to provide a means for the state to identify citizen preferences (Shi 1997; Bratton, Matte and Gyimah-Boadi 2004). Even so, opposition forces often create their own associations under the nose of authoritarian regimes, such as the anti-Soviet *Solidarność* (Solidarity) movement that in Poland in 1980 (Wnuk-Lipinski 2007).

A crucial facet of civil society is *social capital*, which Putnam (1993, 2000) defines as an individual and collective resource built on face-to-face communication, social trust, generalized reciprocity, equality, solidarity and tolerance, norms, and networks of civic engagement. Social capital fosters training of civic skills, a civic spirit and volunteerism, and is also characterized as the resources embedded in social networks that enhance information flows, increase individual influence within the community, and offer reputational and emotional reinforcement (de Tocqueville 1835; Verba, Schlozman and Brady 1995; Lin 2001).

Positive group structure further is reinforced through monitoring and sanctioning, especially through face-to-face interaction. Meeting in person allows for shared verbal and nonverbal communication, which encourages individual decorum, respect for and understanding of group personalities, and facilitates assessment of member's strengths and weaknesses. It is through such understanding groups build trust between people of varied education and experience and deploy their strengths effectively while mitigating individual weaknesses (Sabl 2002). Such commitment reinforces trust between members and thus discourages deviant behaviors within the group through reputational norms. There is also a distinction between *bridging* groups that function to bring together

disparate community members, and *bonding* groups that reinforce close-knit networks among people sharing similar backgrounds and beliefs (Norris 2002; Putnam 2000; 2002). In particular, heterogeneous associations are believed to have beneficial consequences for building social capital amongst disparate members.

Similarly, the communication literature examines social capital through *social presence*, or the degree of social cues inherent in different communication mediums; and copresence, or the communicative interaction between one or more individuals. Social presence and copresence are significant in that most individuals decide to protest with others rather than in isolation: associations enable individuals to exchange information, reduce uncertainty about each other's intentions, and coordinate mobilization plans (Rasler 1996; 1998; Ostrom 2000). This associational assurance process increases the sense of efficacy among group members who calculate that their chances for success are greatest when they act together (Chong 1991; McAdam and Paulsen 1993; Oberschall 1994; Rasler 1996; McPhail and McCarthy 2005). Repression, then, can simply be described as the prevention of copresence (Sewell 2001). Face-to-face communication also mitigates the collective action problem by fostering trust and thus increasing the likelihood of cooperating to achieve public goods (Ostrom and Walker 1997).

<u>Social Capital, Social Ties and the Spiral of Silence</u>

Granovetter (1973) argues that the strength of a social tie is measured by the time, emotional intensity, and reciprocity that characterize the social tie. From this, he proposes the weak ties theory, or casual and acquaintance paths rather than deep relationships between individuals (McAdam, et al. 2001 define the same concept as *brokerage*, or the linking of two or more groups by a mediating group). Information

travels faster through broad and weak ties rather than close and insular strong ties, since weak ties create more social bridges. The significance is that removing a weak tie would do more damage to information transmission than removing a strong tie. In relation to dissent, a larger number of people must be exposed to and join a dissent movement, especially in the initial stages, for the movement to rapidly spread. Individuals with many weak ties are best placed to diffuse innovations.

As with social capital, weak ties are closely related to trust: whether a person trusts a leader depends heavily on whether there exist intermediary contacts who can assure him that the leader is trustworthy (Granovetter 1973). Leaders have little motivation to be responsive to whom they have no connection. Network fragmentation drastically reduces the number of ties from any leader to his potential followers and thus inhibits trust in such leaders. Weak ties also overcome social homophily, or interaction with others with like social attributes. Social homophily can atrophy social movements through group isolation, informational homogeneity, and resource depletion due to lack of broader interaction. Therefore, dissent groups must rely on members who can develop broad social contacts and exploit weak ties (Knocke and Wisely 1993; Fukuyama 1995, 2001). Yet, not all social ties are created equal. The mass communication literature also suggests that information diffusion depends on crucial constituencies (Kulikova and Perlmutter 2007). Crucial constituencies are individuals or groups well-situated in wealth and position to broker information: social and political elites, professionals, media personalities, and so on. Through the crucial constituency leans, the quality of the broker may be more important than the quantity of social ties in determining information acceptance and diffusion.

Information diffusion is also be frustrated by the spiral of silence, a communication theory that posits individuals perceive which opinions are publically popular or unpopular. If an individual perceives that their own opinion is uncommon or losing support, the individual becomes less comfortable voicing their opinion given the possibility that their differing position will incur negative evaluation or social isolation from their community. As a result, minority voices are not articulated and thus go unheard within broader political discourses (Noelle-Neumann 1974, 1993; Hayes 2007). This presents a dilemma: on the one hand, failing to speak unpopular opinions silences alternative perspectives even though the perspective may be widely shared by individuals discouraged from voicing their opinions. On the other hand, keeping disagreement to oneself helps maintain social harmony while simultaneously minimizing the likelihood of negative evaluation (Hayes 2007).

<div align="center">The Internet and Dissent</div>

Modern social movements depend on literacy, classless associations and information flows: communication creates informed social movements, which in turn create opportunity structures by diffusing collective action and creating political space (Tarrow 1998). The spread of previous communication mediums such as newspapers, pamphlets and books diffused information across class lines and linked urban centers with rural peripheries, and such diffusion also significantly reduced the time between publishing and reception. Mass communication shifted formerly highly localized and specific repertoires of collective action to new repertoires that were cosmopolitan, modular and autonomous in nature, creating the conditions for broad, organized, cross-cleavage, and persistent social movements (Melucci 1994; Tarrow 1998; Rucht 2004).

The traditional dissent and repression literature does not speak directly to how the Internet may influence dissent against authoritarian states. However, if effective communication fosters opportunity structures and social trust, one can reasonably assess that the Internet is a premier tool for fostering social movements. Indeed, communication and law scholars have theorized that the Internet reduces protest costs and increases protest space by acting as a decentralized, rapid and relatively inexpensive "architecture of participation [that] challenge or alter dominant, expected or accepted ways of doing society, culture and politics" (Atton 2004, pp. 19; also, Brunsting and Postmes 2002; Deibert 2003; Chadwick 2006; Hanson 2008; Lievrouw 2011; West 2011). Chadwick (2006) and West (2011) also contend that the Internet simultaneously serves as a conduit for communication and information.

<div align="center">Basic Internet Functionality</div>

But first, what is the *Internet*? The Internet is an electronic network of one-to-one, one-to-many, many-to-many, many-to-one, local, national, and global information and communication technologies with relatively open standards and protocols and comparatively low barriers to entry (Chadwick 2006, 7; also, Morris and Ogan 1996). The Internet's technological characteristics were also founded on the norms of its designers and initial user community, which made it difficult to censor. The technology was originally the tool of a small group of engineers and academics that were wary of bureaucracy, trusted each other, and worked well through consensus. In light of this culture, they made specific technological design choices that rendered the network resistant to efforts at centralized control (Abbate 1999; Boas 2006).

Internet functionality is based on the *Transmission Control Protocol/Internet Protocol* (TCP/IP) and *packet switching*. First, TCP/IP breaks data transmissions into small packets for fast transfer (the *TCP* segment) and then seamlessly reassembled data at the receiving end (the *IP* segment). In short, as long an ICT system can "speak" TCP/IP it can join the network at any access point (Naughton 2001; Forouzan 2009). Second, packet switching sends data packets through the most efficient routes; thus a simple email is divided into small pieces that each travel through hundreds of global servers to reach the recipient (Hanson 2008). In addition to speed and packet reliability, basic anonymity is s crucial benefit of both TCP/IP and packet switching: that is, only the system is authenticated through its unique numerical IP address (e.g. 166.18.250.1), not the user. Although there is no interstate body governing the Internet, international regimes such as The Internet Corporation for Assigned Names and Numbers (ICANN) regulate naming and numbering conventions, hardware and software protocols, and the transfer of domain names between private parties (Chadwick 2006).

<center>The Internet and Trust</center>

Respective to interpersonal trust, the Internet is considered extremely low in social presence and copresence in comparison to face-to-face communication, given the medium's lack of visual, gesture and other nonverbal cues (Walther, Anderson and Park 1994; Morris and Ogan 1996; Bargh, McKenna, and Fitzsimons 2002). However, certain features of the Internet bridges traditional social divides and mitigate the spiral of silence, as textual communication via the Internet strips away physical social identity cues (Bargh, et al. 2002; Jensen, Danziger and Venkatesh 2005). Moreover, studies suggest that individuals who turn to the Internet for political information are more likely to

participate in politics (Tolbert and McNeal 2003; Chadwick 2006; Mossberger, et al. 2008). Others suggest that the Internet promotes deliberative exchange of ideas because it facilitates information flows, circumvents information gatekeepers, acts as a means for broadcasting and creating ideas, and fosters emergence of online associations (Bucy and Gregson 2001; Papacharissi 2002; Plant 2004: Lievrouw 2011).

The Internet's capacity for horizontal communication is also particularly germane to association, the public sphere and spatial structure, as the Internet has facilitated the founding and growth of large digital activist networks and also altered existing media formats, sociocultural patterns and political engagement (Diani 2003; Dahlgren 2005; Lievrouw 2011). The Internet also appears designed to structurally transform the public sphere by increasing citizen capacity to express attitudes, desires, and needs, and challenge others without fear of retribution (Habermas 1990; Neuman 2011). Howard (2010) also contends that civil society flourishes online when authoritarian states block physical collective action: returning to the premise that the public sphere can be physical or virtual, the Internet thus becomes a "discursive space" that strengthens social ties, fosters formation of new ties, and exists beyond the reach of the state (pps. 146, 153).

Citing a specific Internet application, Kulikova and Perlmutter (2007) contend that Internet-based weblogs (blogs) are the modern equivalent of the pre-revolutionary America tavern and the pre-revolutionary France salon; and in similar fashion to previous forums, blogs attract individuals likely to participate in revolutions (students, intellectuals, and professionals) and permit circulation of information outside of official channels. In brief, blogs are online journals in which a single writer or many writers (bloggers) can post multimedia content, although text articles are most typical. Blogs

also typically feature comments sections in which readers can engage the blogger(s) and other readers. In their case study of the 2005 Tulip Revolution in Kyrgyzstan, Kulikova and Perlmutter (2007) suggest that a particular blog, *www.akaevu.net*, acted as a virtual samizdat. Unlike print samizdat that depend on original content creation, blogs can be used as content aggregators. That is, bloggers can simply provide links to other news sources. This benefits blog readers by providing access to dozens of news articles that user would otherwise have to find individually, and also benefits the blogger by reducing editorial overhead and risks associated with establishing source contacts.

Additionally, print samizdat required physical distribution of a one-to-many product. The print method increased risk to the physical distributor and also reduced opportunities for reader feedback. In contrast, Internet-based blogs provide anonymity and increased physical security for the authors. Moreover, blog writers can interact with readers through blog comment systems, which allow bloggers to rapidly adjust content or pursue new sources based on feedback (*ibid*). The comments section also functions as a virtual spatial structure, as the shared comment forum permits relatively unfettered sharing of ideas. I say "relatively" in that comments can be moderated by the blogger, or can be monitored by regime interlopers. In the latter case, however, commenter identities remain protected. They also find that blogs permit sharing of metaphor, satire and symbols that inform and motivate audiences, yet are ambiguous enough that the blogs evade state censors. For example, in the 2004 International Blog of the Year award went to *www.18mo.com*, a Chinese blog that, on casual inspection, is solely about dogs. However, the award committee argued that the blog was actually a masterful work of political satire that used dogs to symbolize political repression in China (Zha and

Perlmutter 2009). For example, one of the award judges concluded that dogs were used as metaphors for people, in that the blogger contrasted the unfair life of Chinese dogs to happy dogs in other Western countries (*ibid*).

<div align="center">The Digital Divide</div>

But, Internet literature also suggests that the digital divide between internet haves and have-nots is a crucial barrier to Internet-augmented mobilization within authoritarian states. The digital divide creates parallel systems: one for those with education, income and low-cost Internet connections, and the other lacking the same factors (Norris 2002; Mossberger, Tolbert and Stansbury 2003; Chadwick 2006; Lievrouw 2011)[3]. Diffusion may mitigate the digital divide, however: between 2000 and 2007 the number of Internet users across all developing countries skyrocketed from 76 million to 726 million, as depicted in Figure 2.2 below. The proliferation of public Internet facilities such as Internet cafés and the spread of web-enabled mobile phones are also further reducing costs in development countries where users cannot afford personal ICT systems (Chadwick 2006; Howard 2010).

A communication medium must be adopted by 10 to 20 percent of a population to be considered a mass medium (Valente 1995; Morris and Ogan 1996). New medium growth is typically a slow process, since it requires an ever growing body of users for observers to eventually consider the new medium advantageous. For example, the early-20th Century telephone and late-20th century E-mail were not particularly useful to early adopters since most individuals did not use those media (*ibid*). Yet, unlike the television

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[3] Communication literature contends that new social movements are largely fostered by well-educated information, professional, and creative workers (Touraine 1981; Lievrouw 2011).

and telephone's ubiquitous diffusion across socioeconomic lines, the potential exists for Internet use to remain socioeconomically stratified despite reaching mass medium status. This implies that users in high socioeconomic brackets may be the most likely to use the Internet as a mobilization tool (Ogan 2007). Kulikova and Perlmutter (2007) and Howard (2010) also find that students, knowledge workers, professionals and other well-educated users are the most likely to not only use the Internet politically, but also attempt to circumvent technical censors. While those in lower strata have access through Internet cafes and libraries, they may not have the same knowledge skills as higher strata users (Mossberger, et al. 2003). In particular, the International Telecommunications Union (2011) reports that ICT development increases with GNI growth, but is negatively affected by prices, as illustrated in Figures 2.3 and 2.4. Howard (2010), however, argues that the Internet may not need to reach mass use if those with access function as crucial constituencies and broker information to those without access. The digital divide can further be mitigated if movements use multiple communications mediums to diffuse information (Chadwick 2006; Lievrouw 2011).

Still, the Internet appears theoretically well-suited for protest mobilization. Thanks to the TCP/IP communication protocol, users can connect to the Internet using numerous systems (desktops, laptops, cell phones, Internet-capable printers and cameras, etc.). Packet switching routes communication through paths of least resistance, making information flows difficult to thwart. Users can communicate in real time in a variety of formats, from basic text messaging and email to advanced voice-over Internet protocol (VOIP) communication and simultaneous editing of shared geospatial information systems. For example, in early February 2011 anti-regime protesters in Libya began

mapping Twitter reports onto Google Maps in order to provide GIS information to fellow protesters and news outlets, as depicted in Figure 2.5 (Brown 2011).

<div align="center">Internet Censorship and Effects on Dissent</div>

Since almost any system with a screen and network connection can access the Internet through TCP/IP, it should be very difficult for central authorities to control online mobilization without broad technical censorship (Howard 2010). For example, Chinese sensors within the Ministry of Information Security and Ministry of Public and State Security scour the web and personal online correspondence for "poisonous weeds" that "are harmful to the dignity or interests of the state" (New Scientist 2004; Zha and Perlmutter 2009). Despite sophisticated censorship methods, however, the number of Chinese bloggers jumped from 700,000 to 47 million between 2005 and 2007 (Sifry 2005, 2006; Perlmutter and Hamilton 2007; Survey Report 2007; Perlmutter 2008).

Yet, authorities in many countries patrol the Internet just as they do physical public spaces, and states such as China, Iran and Myanmar have not hesitated to arrest and punish online dissidents (Kulikova and Perlmutter 2007; Neuman 2011). Indeed, the perception that authorities are on the electronic prowl have a chilling effect on online dissent, as seen in China and other authoritarian states (Deibert, Palfrey, Rohozinski, and Zittrain 2008). Analysts of radical protest movements further assert that some groups avoid the Internet and rely on traditional face-to-face communication to avoid surveillance (van de Donk, Loader, Nixon, and Rucht 2004). Other authoritarian regimes, such as Cuba, have put less effort into censorship and focus instead on controlling who has access to the Internet in the first place (Kalathil and Boas 2003).

Boas (2006) and Lessig (2006) assert architectures are the most effective means of regulating Internet behavior. *Architectures* are technical controls such as firewalls, state monopolies on Internet Service Providers (ISPs), and software surveillance of the network. If the state controls the gateway systems through which TCP/IP communicates (*root* or *backbone server* control), then the state can control almost all the traffic which crosses into the state network (Boas 2006; Chadwick 2006). For example, the Chinese Ministry of Public Security has computer supervision monitoring units in every provincial capital and most large cities. China routinely blocks web pages based on their static IP addresses and can also dynamically block pages based on keywords entered into URLs or search engines. Cuba and Burma have even tighter controls: Cuba plans all state-wide ICT diffusion efforts and prosecutes individuals who buy equipment outside of state controls, while Burma limited all incoming and outgoing traffic to a single junta-controlled server as of 2003. In contrast, Egypt has no ICT policy and actually encourages technological proliferation; however, as of 2003 Egyptian authorities were known to conduct electronic sweeps and make arrests (Kalathil and Boas 2003).

<u>Technical Control Measures</u>

Technical filtering usually takes place at one of two levels: the gateway backbones and the Internet Service Providers (ISPs). Filtering at the gateway backbones is typically the most efficient, as all external traffic must pass through the gateways and there are fewer systems to control (Boas 2006; Deibert, et al. 2008). Further, states often target application intermediaries, or sites which foster the exchange of information. Such sites include language translation sites, email providers, blog hosts and proxy server sites (Deibert, et al. 2008). Generally, sites such as Wikipedia or Twitter which allow real-

time information exchange are larger regime threats than static or niche content sites, as information and collaboration sites provide dissenters with real-time tools for communicating, organizing and executing protests (Crandall, et al. 2007; Deibert, et al. 2008). Deibert and Rohozinski (2010b) further divide technical controls into first, second and third generation methods. First generation controls include methods such as IP blocking (or TCP/IP header filtering), Domain Name System (DNS) tampering, and proxy filtering (or TCP/IP content filtering) (Faris and Villenveuve 2008; Goldsmith and Wu 2008; Lessig 2006; Murdoch and Anderson 2008).

The first, IP blocking, is the bluntest instrument, as the entire IP address is blocked regardless of overall content. However, blanket censorship of entire sites often raises the most public anger from Internet users: Chinese officials have been known to concede to angry users who depend on content delivered through certain blocked IP addresses (Crandall, et al. 2007). Next, DNS tampering blocks access to domain names but not the underlying numerical IP addresses: e.g. blocking a website with the domain name *www.ihatechina.com* but not the IP address "192.63.174.100." Since ISPs typically host DNS servers, regimes can use DNS tampering to block a site access within a specific region rather than throughout the entire state. However, this method is also easily defeated, as users can enter the IP address directly to access the site.

Finally, regimes use proxy filters to reassemble and read all packets entering state gateways, check their content against unauthorized domains, subdomains and keywords, and selectively block content based on the results (Crandall, et al. 2007). Proxy filters can also be used for surveillance purposes: f or example, while Egypt does not block content, the regime has jailed dissenters based on information gathered through content

filtering (Zittrain and Palfrey 2008). Further, regimes can also use snowball sampling surveillance on the network (Murdoch and Anderson 2008). Snowball sampling finds links on blocked pages, traces the links to their sources, and then dynamically blocks the new pages if content analysis on the new page finds unauthorized material.

However, first generations are static and relatively easy for determined dissenters to circumvent. Thus, regimes have turned to layered second and third generation controls to provide more fidelity. Examples include active surveillance of information choke points to not only filter content, but also to trace their destinations (Deibert and Rohozinski 2010a). Additionally, China has perfected their packet identification capabilities to the point that the regime can block individual images on image hosting sites, indicating Beijing's ability to burrow into a site and block individual subdomains (Schwankert 2007; Roberts and Palfrey 2010).

More regimes are also demanding that ISPs accurately identify and authenticate users, which reduce anonymity and the efficacy of circumvention techniques (Lessig 2006; Zittrain and Palfrey 2008). For example, in 2004 Saudi Arabia installed a proxy server at their backbone to scan and filter all incoming traffic and mandated client-side user authentication in order to remove anonymity (Goldsmith and Wu 2008). Regimes can also deliberately infect their own networks with malicious software (malware), installing spyware, worms, key loggers and other software on ICT systems to collect and trace information flows and user data (Deibert and Rohozinski 2010a, 2010b; Roberts and Palfrey 2010).

Relatedly, following a series of probes conducted against the Chinese network, Crandall, et al. (2007) further compared China's keyword filtering capabilities to a

panopticon prison rather than a firewall. A panopticon prison is designed to maximize visibility and concealment for guards while at the same time making it difficult for prisoners to know if they are being observed. In this case, the team found that China's filters were inefficient enough to indicate that some blocked keywords were allowed to pass through the filter so they could be traced. At the same time, regimes also attempt to disguise censorship efforts to either fool or frighten users. For example, instead of tipping off users with, "this site is blocked," screens, regimes can redirect users to, "file not found," or, "this page is taking too long to respond," pages in order to trick the user into thinking the error is random rather than purposeful (Schwankert 2007; Faris and Villenveuve 2008; Goldsmith and Wu 2008). China also restricts users to Intranets, or networks with no or limited connectivity to outside networks (Zittrain Edelman 2002; Kalathil and Boas 2003; Hanson 2008). By doing so, China can keep Internet communication and commerce corralled inside the state-wide firewall. In sum, technological controls render certain types of Internet use impossible and do not rely on psychological reinforcement.

<div align="center">Soft (Psychological) Control Measures</div>

Authoritarian states can also use "soft," or psychological, control measures such as self-censoring, social conditioning and appeals to cultural mores. In other words, if the society in general has a cultural respect for authority and fear of reprisal then simple Internet café spot checks are usually enough to enforce control. Within their Asian case studies Kalathil and Boas (2003) discuss traditional "Asian values" such as respect for authority and group consensus over individualism. Similarly, Howard (2010) characterizes authoritarian social controls as being part of "cultures of surveillance" that

foster norms through fear of retribution. By tapping such values regimes encourage compliance: for instance, the average user does not want to bring shame upon himself of his family (Hanson 2008).

Kalathil and Boas (2003) also contend states that lack strong civil societies are not likely to develop civil dissent online; for example, neither Saudi Arabia nor the UAE are vibrant hotbeds of civil discourse, and thus the regimes rely on political apathy instead of sophisticated technical controls. Furthermore, Kuwaitis value relationships developed over years of face-to-face interaction, and are hesitant to discuss personal or topics online--especially with users they have never met in person. Internet access does not instantly promote openness within a conservative, collective and hierarchical society (Wheeler 2006). Egypt stands in contrast with a long history of coffee-house politics and vibrant debates, which threatened the Mubarak regime when combined with Egypt's lenient Internet policy. In Egypt's case, the authorities continuously reinforce taboos on anti-regime activity initiated by former presidents Nasser, Sadat and Mubarak (Kalathil and Boas 2003). Viewed through the lenses of political culture and civil society, these arguments suggest that the Internet's efficacy as a mobilizing structure is conditioned by embedded cultural norms and social trust. Norms and trust can prevent Internet mobilization from occurring outright, or can be manipulated through soft controls.

Conclusion

The multidisciplinary literature detailed above indicates that the answer to my research question is not straightforward. The combined literatures suggest that the Internet is an exceptional mobilization tool; yet, there are few clear Internet-facilitated mobilization research programs shared between political science, communications, law,

and computer science. Similarly, a weakness of the Internet-mediated dissent literature is that it does not necessarily draw on existing social movement theories. My goal, then, is advance findings from these disparate literatures into a theory of Internet-mediated dissent, which I present in the next chapter.

Figure 2.1: Value Cultural Map
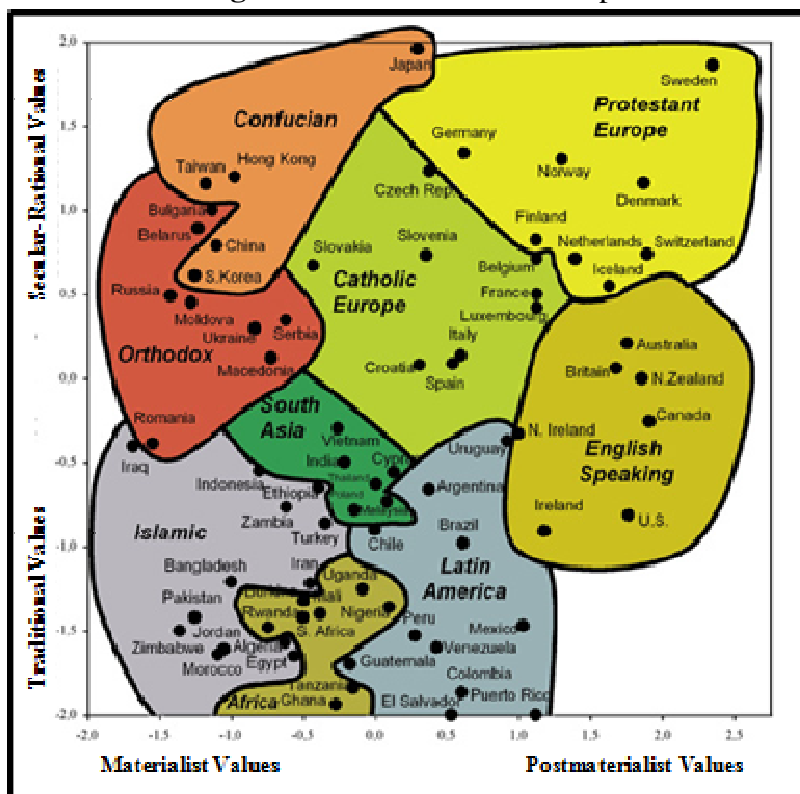
Source: Inglehart and Welzel 2010, 554

Figure 2.2: Global Internet User Growth 2000-2007
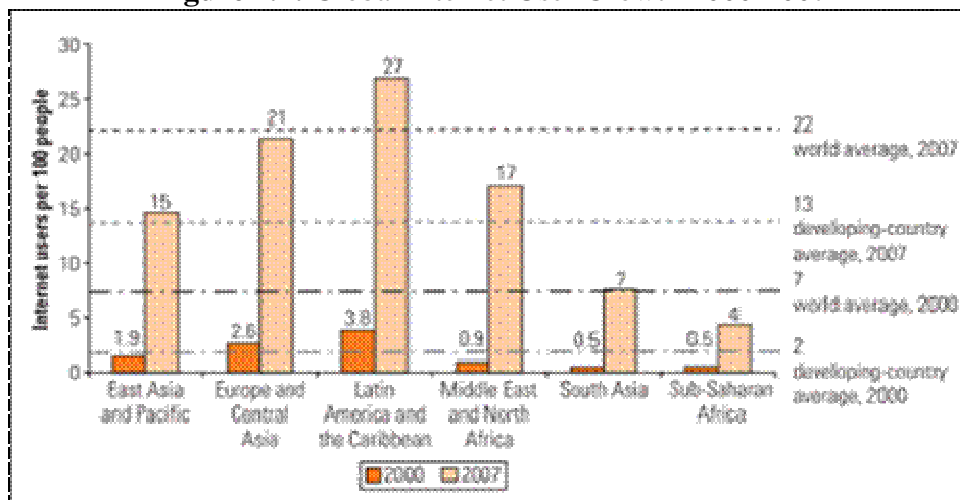
Source: ITU, World Telecommunication/ICT Indicators Database (I4CD 2009)

Figure 2.3: ICT Development Index and GNI per Capita by Region 2009
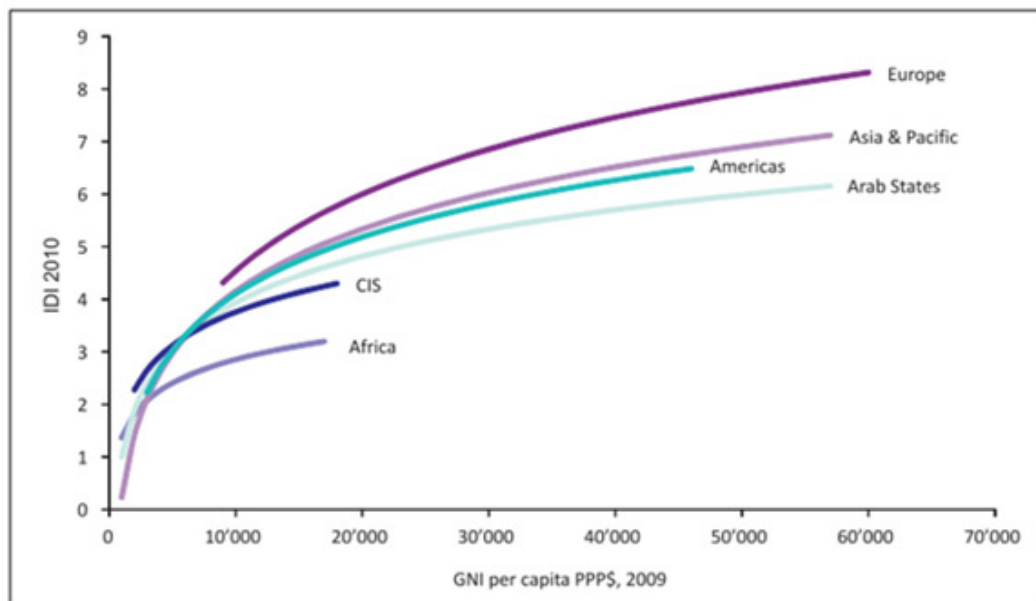
Source: World Bank 2011, 40.

Figure 2.4: Relationship between ICT Development Index and ICT Price Basket, 2010
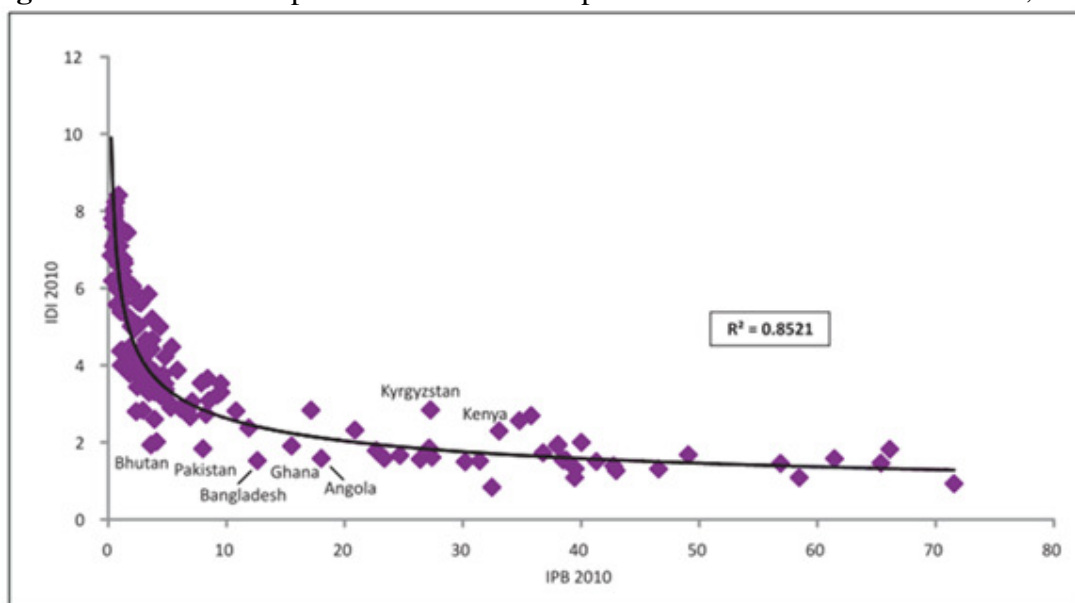
Source: World Bank 2011, 61.

Figure 2.5: Example Twitter Report Overlay on Google Maps

Source: http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=215454646984933465708.00049c59184ae1136341a (accessed on 26 Jan 2012)

CHAPTER 3

A THEORY OF INTERNET-MEDIATED DISSENT

Introduction

In this chapter I present a theory of Internet-mediated dissent founded on McAdam,

McCarthy and Zald's (1996) [4] synthesis model of contentious politics (also, McAdam,

Tarrow and Tilly 2001). The synthesis model (Figure 3.1) explains protest by identifying

the flow of protest from the catalyst that motivates protest movements (social change,

step 1) to the moment where movements and regimes interact over given issues, with

occasionally violent outcomes (contentious interaction, step 6). Protest and coercion

processes also interact laterally. For example, shifts in framing processes (step 4) can

affect real or perceived opportunities available to the movement (step 3). In turn,

coercion (or threat, step 3) influences how movement participants frame, or interpret,

available political opportunities. Non-participants can also frame threat through fear and

thus will be less likely to join movements.

My theoretical model is embedded in the mobilization structures (2) and the

opportunity/threat (3) stages of the synthesis model. Specifically, I expect that Internet

access allows dissidents to use the Internet as a mobilizing structure. However, regimes

have adopted measures to control Internet information flows. By applying different

technical and soft censorship measures, states can attempt to reduce the Internet's efficacy

as an opportunity structure. Certain forms of censorship also overtly increase the

perceived costs of using the Internet as a mobilization structure, which increases

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[4] McAdam, et al. (2001) argue that the synthesis model may not be as useful for representing contentious action in authoritarian states. However, the synthesis model is similar to Davenport's basic model of repression and mobilization, which includes regime type (in Davenport, Johnston and Mueller 2005, xiv).

perceived threat. The chapter proceeds as follows: first, I present the synthesis model of contentious politics and define each of the six stages. I then provide an overview of my Internet-mediated dissent model, followed by discussion of three theoretical components: Internet access, Internet censorship, and the Internet user threshold.

<div align="center">A Synthesis Model of Contentious Politics</div>

My theoretical argument rests on the contention that the Internet offers social movements a relatively inexpensive, anonymous and agile means of mobilizing individuals and resources across long distances. These ideas align with McAdam, McCarthy and Zald's (1977) contention that, "social movements result when expanding political opportunities are seized by people who are formally or informally organized, aggrieved, and optimistic that they can successfully redress their grievances" (Goodwin, Jasper and Khattra 1999, 42).   To frame my theory, I start with a synthesis model of contentious politics from McAdam, Tarrow and Tilly (2001), illustrated in Figure 3.1.

The first step (1), social change, represents mechanisms that motivate protest movements. The mechanism can be a sudden change in opportunities and constraints (or threats). In the Iranian example cited at the beginning of this project, mass sense of injustice following Pres. Ahmadinejad's reelection was the social change mechanism and resulting protest. As another example, on 17 December 2011, Tunisian merchant Mohamed Bouazizi immolated himself in despair over lack of opportunity and public embarrassment at the hands of Tunisian security forces. Bouazizi's act enflamed long simmering anti-regime grievances, which resulted in mass protests and the eventual collapse of the Ben-Ali regime (Fahim 2011). Indeed, Internet access may be the catalyst, in that the medium provides informational access (Chadwick 2006; West 2011).

The second step, mobilizing structures (2), are the everyday social interactions that either foster or discourage mass protest. This step includes influences from civil society, social presence, the public sphere, and social ties. Hardin (1995) posits that it is such social ties that encourage individuals to act in concert and thus overcome the Olson's (1964) collective action problem. McCarthy and Zald (1977) also contend that available ICTs influence how movements communicate to gather and expend resources.

As discussed previously, social norms and ties help overcome the collective action problem, as social ties both foster group cohesion and individual behavior. Muller, Dietz, and Finkel (1991) find that group encouragement and expectations influence the likelihood that individuals will join in protest movements. Opp (1994) similarly finds that support from critical friends has a positive and significant influence on dissent participation. A good pre-Internet example is Egypt's Muslim Brotherhood during the 1950s and 1960s, who tapped into local social networks through face-to-face communication. By interacting on a personal level, the movement not only spread information through local channels but also encouraged individuals to join or provide other tacit support (Gurr 1970).

In turn, opportunity and threat (3) represent the environmental constraints that influence social movement development, particularly in regards to the structure of the state (Rochon and Mazmanian 1993; Tarrow 1998). The literature offers two relevant hypotheses on the effects of opportunity and threat on protest activity. The first suggests the closed political systems are more likely to encourage protest outside of conventional channels. According to this theory, protests are more likely in societies with fewer participation options or in highly-coercive states (Kitschelt 1986; Cuzan 1991; McAdam

1999; Dalton and van Sickle 2005). Contrasting studies claim that political systems with a mixture of open and closed structures are most conducive to protest (Eisinger 1973; Meyer 2004). The second hypothesis specifically considers coercive restrictions. Gurr (1970) argues that the state's repressive capacities, as measured by the size of the police or military forces, negatively influence protest activity (Dalton and van Sickle 2005).

The 1989 Tiananmen Square protests in China offer contrasting illustrations for opportunity and threat. The largely-student run protests took place between 15 April and 4 June, during which political opportunity structures appeared to increase for the movement. With lack of coercion, the movement spread to other Chinese cities and also encouraged individuals to travel to Beijing to join the protests. The regime eventually declared martial law on 20 May, but with the lack of overt coercion the protests continued unabated. Unfortunately, on 4 June the regime applied real threat in jarring fashion, sending army units into Beijing to stop the protests by force. An untold number of protesters were killed or wounded in the ensuing confrontation, and the movement quickly collapsed under withering coercive force (McAdam 1996; Laing 2001).

The fourth step, framing processes (4), represent collective identities, shared goals, and how group members jointly define and interpret social change. Such norms not only provide group stability, but are also the lens through which frames are interpreted and the clay from which new cultural elements are created (Swidler 1986; Benford and Snow 2000). This step is alternatively referred to as *cultural* framing, in that how individuals and groups react to social change are conditioned by cultural norms (Tarrow 1998; McAdam, Tarrow and Tilly 2001; Inglehart and Welzel 2005). Framing processes are also enhanced or constrained by opportunity structures (e.g. regime type), and

information crossing through mobilizing structures can alter cultural perceptions. In particular, framing processes further influence social consensus if they not only resonate with existing beliefs, but also clearly offer solutions for social change and identify where to cast blame (Steinberg 1995; Thornton 2002; Dalton and van Sickle 2005). For example, Thornton (2002) notes that the *falun gong* movement in China initially evaded government censure since it was seen as a relatively benign religious group. However, the group gained notoriety for a series of anti-regime protests; actions which, in turn, resonated with and attracted more likeminded individuals. The group's rapid growth in both membership and protest activity eventually alarmed Beijing, resulting in a massive crackdown against the group in 1999.

Interaction between mobilizing structures, opportunities and threats, and framing processes lead to the fifth step: repertoires of contention (5). These are the available means for social movement participants to articulate collective claims. The sixth and final step, contentious interaction (6), is simply the interaction between protesters and the regime (Tarrow 1998). Protest movements across the Middle East since 2009 offer stark examples between successfully protest movements and regime coercion. On one hand, protests in Tunisia, Egypt and Libya escalated in favor of anti-regime movements and ultimately resulted in the collapse of the respective regimes. In contrast, Iran quickly quelled the 2009 protests, and some observers contend that the ongoing contentious interaction in Syria may escalate to civil war (Barnard and Gladstone 2012).

<u>A Model of Internet-Mediated Dissent</u>

My theoretical model resides within steps 2 and 3: a circle of interaction in which the Internet acts as a mobilizing structure, opportunity and threat. In turn, regimes apply

Internet censorship measures to Internet mobilization and associated movement opportunities; or, Internet censorship becomes "threat". I overlay my model onto the classic model in Figure 3.2. Events leading up to and during the *25 January* protests in Egypt serve as a relevant illustration for this model.

While anti-regime discontent had been fomenting in Egypt for years, demands for social change (1) markedly increased between 2003 and 2006 following a serious of elections and political referendums (Lynch 2011). In June 2009, Facebook released an Arabic version of the eponymous Internet application. Facebook is a social networking application that allows users to construct profiles consisting of personal histories, contact information, and "post" textual, image and video updates. Users then "friend" other users, who are typically individuals they know: family, friends and acquaintances. Internet users readily adopted Facebook, as it allowed them to easily maintain interpersonal contacts over long distances. Facebook also allows users to build pages centered on given topics, which other users with similar interests can then follow. In April 2011, the *April 6 Youth Movement* (which was founded to support a labor strike) built Facebook page entitled "We are all Khaled Said," which was in homage to a young man that had been beaten to death in Alexandria by Egyptian Police. The page soon attracted 80,000 users and became a hub for sharing dissent information (Dunn 2011; Tufecki and Wilson 2012).

Then, in January 2011, the Ben Ali regime in Tunisia came to a rapid collapse following almost a month of continuous anti-regime protests. This shifted the perceived opportunity structure in Egypt, convincing members of the *April 6 Youth Movement* group to organize their own protest on 25 January 2011 outside of the Ministry of the

Interior, with 25 January coincided with Egypt's National Police Day (Muslim Brotherhood... 2011; Stepanova 2011). Word of the protest spread rapidly through Facebook, and was further magnified after *April 6 Youth Movement* member Asmaa Mahfouz recorded a personal call to action and posted the video to YouTube, a popular video sharing application (el-Naggar 2011). Thus, Facebook and YouTube (along with other applications such as Twitter) acted as mobilizing structures (2) and increased available opportunities (3) for the *25 January* movement. Indeed, Tufecki and Wilson (2012) conclude that far fewer Egyptians would have attended the initial 25 January protest without social media. They argue that in authoritarian regimes, high participation on the first day is often necessary to initiate larger protests that ultimately result in movement success. Thus, their results suggest that politicized social media use was associated with increased likelihood of first-day participation.

In turn, the Mubarak regime was caught with its Internet pants down, and thus was initially unable to apply threat and reduce the Internet's political opportunity (3). Cairo had not established serious technical censorship programs previously and thus was initially limited in electronic response options. Barring the ability to filter network traffic, the regime decided to take the entire country offline on 27 January 2011--the first time in Internet history that a state purposely went offline to halt information flows (Dunn 2011). However, this can even have had the opposite effect of mobilizing individuals who were otherwise apolitical but depended on the Internet as an information conduit (Dunn 2011). Despite taking the Internet offline, however, technically savvy protesters were able to find alternative Internet access routes to organize and mobilize increasingly larger protests, which ultimately resulted in Pres. Hosni Mubarak stepping

down from power on 11 February 2011 (Tufecki and Wilson 2011). While this is not to

say that the Internet was the sole causal factor in bringing down the regime, this

illustrative case highlights how the Internet is a particularly powerful mobilizing

structure, particularly in a state without significant Internet control measures.

<div align="center">

Internet Access as a Mobilizing Structure

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The first theoretical component is Internet access as a mobilizing structure (2). With

the understanding that mobilizing structures consist of interpersonal social networks and

associate communications, I assess that the Internet serves as a mechanism for linking

groups and fostering communication across great distances while at the same time

reducing participation costs. The Internet typically functions on existing communication

infrastructure (twisted-pair telephone wire is sufficient for dial-up and Digital Subscriber

Line modem access), through which any TCP/IP-capable system can communicate with

other systems. This allows users to not only communicate with others almost

instantaneously, but also provides user access to vast stores of information. Unlike

previous one-to-many or one-to-one ICTs (such as television and the telephone), the

Internet allows individuals to broadcast not only one-to-many and one-to-one, but also

many-to-many. These varied formats encourage likeminded individuals to interact on

various topical and interest-based sites.

Users are also encourages to share information and engage in discussion: for example,

modern Web 2.0 applications allow many users to collaborate simultaneously on projects

such as electronic maps and shared news archives. Moreover, the Internet lets the user

become the "one" communicating to the "many," which reduces dependence on

professional informational gatekeepers such as newspapers and radio stations. Indeed,

while Internet access in many developing and non-democratic countries is limited by censorship, cost, and other factors, a potential outcome of Internet diffusion--even under strict government controls--may be a gradual liberalization of otherwise restricted public sphere due to increased information access (West 2005; Chadwick 2006; Sunstein 2007; Groshek 2009; Deibert, et al. 2010).

However, the Internet cannot be used as a political tool if the Internet is unavailable, either through poor infrastructure or proactive regime control measures. As discussed previously, while global Internet access is expanding rapidly and the global digital divide is growing smaller, populations still remain unwired. Available infrastructure can also be cost prohibitive, let alone restricted to dial-up modem speeds. Some theorists argue that sub-broadband Internet speeds are severely detrimental to political Internet use, since few modern Internet applications can be used on narrow, copper-based modem bandwidth pipes (Chadwick 2006; Mossberger, et al. 2008; West 2011). At the same time, states such as Cuba and Myanmar have carefully managed their Internet infrastructures so as to control the number of users and information flows. States with relatively dense Internet infrastructure and associated dense censorship regimes also reduce access, as demonstrated by backbone server limitations in China.

Regardless, based on the literature I posit that Internet access creates conditions for social mobilization which, if well organized, are difficult for regimes to counter. Therefore, despite attempts at social control as a state's Internet user base grows so do the odds that users will challenge social boundaries and use the Internet to mobilize dissent. I therefore expect that Internet diffusion as quantitatively measured through the number

of Internet users per 100 people may be correlated with increased dissent against authoritarian regimes.

>**H1:** incidents of anti-regime protest increase as Internet use increases inside non-democratic states.

Additionally, I assess that the effect is not a simple linear relationship. Following Kulikova and Perlmutter (2007), ONI (2007) and Howard (2010), Internet mobilization even at low access rates can dramatically increase protest mobilization and sustainment, particularly if users act as brokers for spreading information to those without access. But, as Internet access rates increases the likelihood of protest diminish, since higher Internet use rates may result from quality of life factors such as increased education and economic opportunity (Mossberger, et al. 2008; West 2011). Internet-mediated dissent also decreases at higher usage rates due to increasing censorship efforts, although I hypothesize in chapter 5 that censorship efforts become less effective as more and more people gain Internet access. Thus, as part of this test I will also analyze the data for a possible curvilinear relationship between Internet use and protest.

<div align="center">Effect of Internet Censorship on Internet-facilitated Dissent</div>

The second theoretical component is the effect of Internet censorship on Internet-facilitated dissent, which aligns with reduced opportunity and increased threat in the synthesis model (3). As discussed previously, regimes have a wide variety of technical and social censoring tools at their disposal. To reiterate, technical controls include tools such as Firewalls, URL blockers, and DNS tampering, while soft controls include psychological measures such as physical monitoring of public Internet spaces and playing off of shame, fear, or other social mores to discourage political Internet use and thus reduce dissent opportunity structures.

However, the technical and soft control causal mechanisms vary. First, technical controls reduce opportunity by rendering the Internet unavailable. For example, a Firewall is a suite of hardware and/or software tools that is installed on a given network's entry point. The entry point may be highly local (a user's private home wireless network) to statewide (installed on country Internet gateways). The purpose of a Firewall is to prevent specified data from entering or leaving the protected network to or from an outside network (Gouda and Liu 2004). Firewalls are typically considered in relation to security threats (such as malicious software), or situations where the Firewall takes on literal meaning: a barrier that prevents security threats from entering and damaging the local network (the term comes from the use of walls or other barriers to protect physical structures from fires). Firewalls are configured with specific rules, such as not allowing certain keyword searches or denying access to specific sites. All incoming or outgoing data packets are then checked against Firewall rules and packets that violate rules are denied entry to or exit from the network. At as local-level example, Internet café owners can program Firewalls to deny access to specific websites. On a larger scale, Iran's use of deep packet inspection during the 2009 protests is an example of a gateway-level Firewall. The previously mentioned URL blocking, IP filtering and proxy filtering control measures are actually techniques typically applied through Firewalls. I illustrate the Firewall filtering process in Figure 3.3.

Technical filters thus reduce opportunity by physically reducing, or even eliminating, the Internet's utility as an informative, organizational and communicative tool. Indeed, as of this writing, China blocks the popular Internet applications Facebook, Twitter, YouTube and Skype specifically to prevent their use in organizing dissent (Wauters

2009; Moore 2010; Mangalindan 2011; Lee 2012). In ironic counterpoint to my previous Tiananmen Square example, China blocked access to Twitter, Flickr and Hotmail (an email application), FoxNews, BBC News, The Huffington Post, and blogging tools Live Journal and MSN Spaces in the days leading up to the 20th anniversary of Tiananmen Square in 2009 (Zetter 2009).

A user's only recourses in restricted Internet environments are to attempt to circumvent the filters or find unblocked sources; this assumes, however, that the user knows how to circumvent censors and is willing to accept the risk of getting caught (Goldsmith and Wu 2008). Uses may also not be aware that filters are in place: to reiterate, some filtering programs are designed to appear as system errors and do not present the user with overt warnings (Deibert, et al. 2008). Overall, though, I assess that technical filters reduce opportunity by rendering certain Internet functions unavailable.

H2a: technical Internet censorship programs decrease the likelihood of protest inside non-democratic states.

Second, soft (or psychological) controls reduce opportunity by increasing real or perceived threat. Rather than using hardware or software tools, states use psychological tools to enforce compliance through shame and fear. Indeed, an Internet café may only need a single staff member looking over user's shoulders to discourage deviant behavior rather than suites of sophisticated technical hardware and software. The expectation is that the shame of having deviant behavior exposed to peers or the fear of government retaliation will discourage individuals from using the Internet as a mobilizing structure (McAdam, et al. 2001; Kalathil and Boas 2003; Deibert, et al. 2008; 2010). This method plays to risk aversion, in that users psychologically conditioned to accept that viewing

illicit material is immoral or not politically acceptable will not question normative or regulatory rules so as to avoid punitive action (Kalathil 2003; Hanson 2008).

A recent example of this process occurred in Saudi Arabia. In February 2012, Saudi writer Hamza Kashgari was arrested in Malaysia and repatriated to Saudi Arabia for posting messages on Twitter considered blasphemous against the Prophet Muhammad (Gooch and Goodman 2012). Saudi religious leaders have both demanded his execution and argued that, "incubators...of delusion and evil, such as ,"Internet sites, cafes, salons, books, and audio or video media, must be banned, and religious education for the young intensified" (Knickmeyer 2012, A7 para. 7). These demands are perceived as threat by younger, Internet-savvy Saudis, and have thus increased fears of retaliation (*ibid*). In short, then, I assess that soft controls reduce opportunity by increasing threat.

H2b: soft Internet censorship programs decrease the likelihood of protest inside non-democratic states

However, the combination of technical filters and soft controls may be greater than the sum of their parts (Boas 2006). From the regime's standpoint, a mixed technical and soft control design should dramatically reduce opportunity structures by technically thwarting all but the most tech-savvy users while at the same time applying soft controls to convince users they cannot afford to be caught circumventing censors. For example, if tech-savvy patrons within an Internet café can configure their browsers to access dissident websites, they will be stopped only by the embedded knowledge that such behavior is socially unacceptable, or that café managers are observing their Internet use and could report their transgressions to authorities. Challenging an effective approach requires risk tolerance on the part of the dissenter yet proves highly effective for the state, as a small number of savvy dissidents rarely offer serious challenge against the regime

(Boas 2006; Hanson 2008). As illustrated previously with the *25 January* protests in Egypt, dependence on social controls alone appeared to be completely ineffective against a motivated social movement. In comparison, research by Kalathil and Boas (2003), Wheeler (2006) and Hanson (2008) suggests that layering technical filters on top of soft controls enhances the effectiveness of both by magnifying user threat perceptions.

> **H2c:** combined Internet censorship programs decrease the likelihood of protest inside non-democratic states to a greater extent than the two methods alone.

<div align="center">The Internet User Threshold</div>

For the third theoretical component, I assess that despite the type of censorship, increased Internet use eventually overwhelms the regime's capacity to censor information flows; thus, transitioning from a neutral tool to a medium for overcoming social movement thresholds. I assess two reasons why this is the case: first, as Internet use increases the expenses of implementing and maintaining censorship hardware and software likewise increases in time, material and personnel costs (Deibert, et al. 2008; Hanson 2008). At the same time, regimes must balance discouraging online dissent against the risk that censorship reduces economic rewards (Kedzie 1997; Dunn 2011). For example, while Mubarak's decision to cut almost all Internet access during the 25 January protests was particularly stark, the event highlighted consequences: the OECD estimates that the shutdown cost Egypt's economy $90 million over five days, with other estimates as high as $110 million (Olson 2011).

Second, as a state's Internet user base increases, so does knowledge on how to use Internet tools at their maximum potential, including methods to circumvent technical filter methods (Froomkin 2003; Boas 2006). One common method for evading filters is to access the Internet through a proxy server. A proxy server allows users to access

blocked websites by routing communications through the proxy. The user either connects to the proxy server directly by typing in the server's Internet Protocol (IP) address and port number, or by using a web proxy (Vijayan 2009). A web proxy is simply a website that has proxy software embedded within the website code. Once connected, the proxy server handles all Internet requests on behalf of the user and thus does not trigger filtering rules. I illustrate a simple proxy process in Figure 3.4.

Kulikova an Perlmutter (2007) also suggest that the Internet threshold depends on the quality rather than quantity of users. In their study of Kyrgyzstan's 2005 Tulip Revolution, they noted that only 10-12 percent of the population had Internet access. But despite low Internet penetration, *www.akaevu.net* attracted users who were not only effective brokers but who also had the technical knowledge to evade filtering efforts. Ultimately, the revolution against the regime succeeded with only a few thousand people. Keeping with Kulikova and Perlmutter, the literature suggests the number of savvy technical users increases as the total number of users increases, and that movement entrepreneurs only need to find a handful of filtering gaps to maintain information flows.

> **H3:** As in Internet use increases, the effectiveness of Internet censorship inside non-democratic states decreases.

Over the next two chapters I test my theoretical components through three large *N* empirical studies. Most of the existing Internet dissent and repression literature consists of qualitative case studies: while theoretically rich, it is difficult to generalize the results across all authoritarian states through case studies alone. Thus, I assess that large *N* quantitative analyses will offer a more precise and generalizable understanding of Internet effects on protest inside authoritarian states.

Figure 3.1: Synthesis Model of Contentious Politics
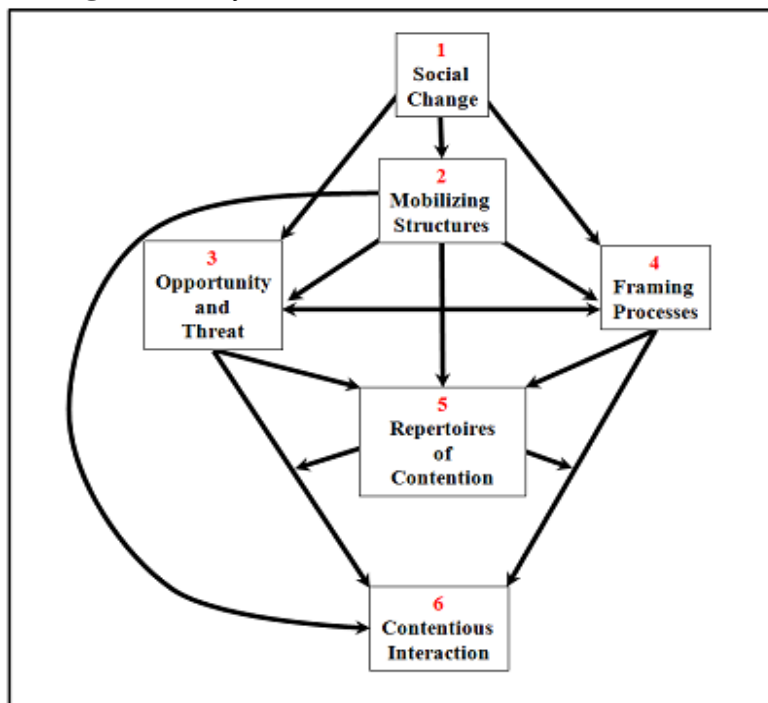
Source: McAdam, Tarrow and Tilly 2001, 17

Figure 3.2: Model of Internet-Mediated Dissent
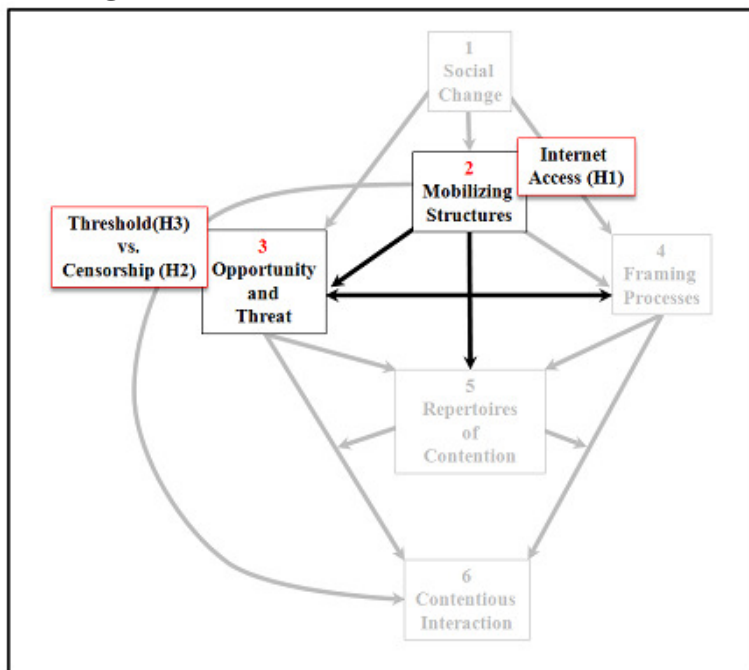
Figure 3.3: Basic Firewall Operation
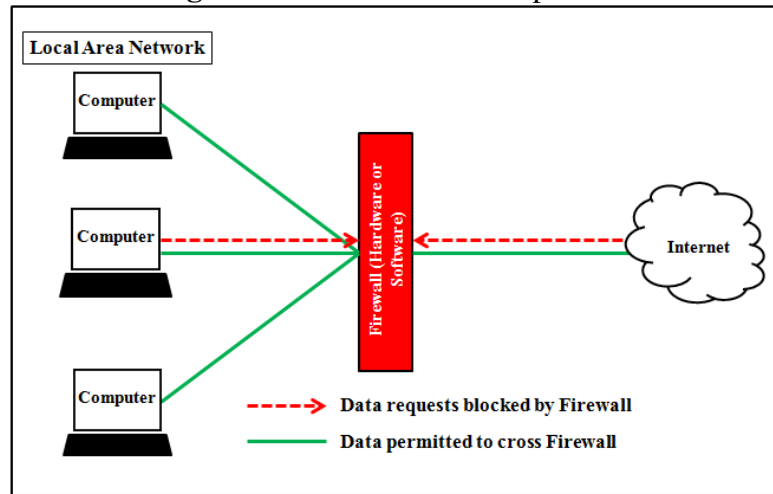
Figure 3.4: Basic Proxy Server Operation
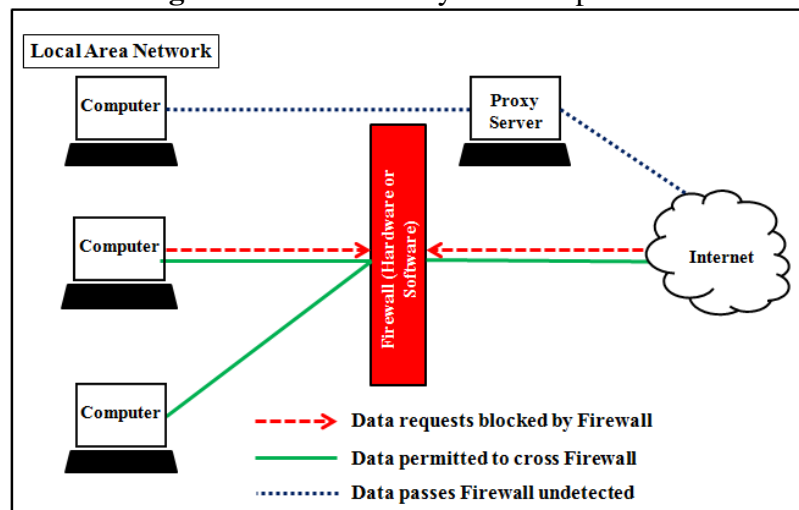
CHAPTER 4

EFFECTS OF INTERNET ACCESS ON PROTEST

<u>Introduction</u>

In 1996, Internet access in Myanmar (Burma) was only available through a single, state-run Internet Service Provider. Furthermore, that year Myanmar's State Law and Order Restoration Council (since renamed the State Peace and Development Council) passed the "Computer Science Development Law," which imposed up to 15-year prison sentences and $5,000 fines for anyone who owned a modem or fax machine that was not registered with the government (Danitz and Strobel 1999; Naughton 2001). Despite these limitations, activists ins and outside of Myanmar were still able to use the Internet to spread anti-regime information over encrypted communications channels; in particular, activists posted videos of the December 1996 student demonstrations to the Internet within days of recording--a significant feat considering the limited access, restrictive rules, and less-sophisticated Internet technologies at the time (Danitz and Strobel 1999). Danitz and Strobel (1999) argue that, relative to other forms of broadcasting available in the mid- to late-1990s, Internet-based communications offered far greater benefit in terms of cost, speed and ease of use.

In Internet time, however, 1996 was an eternity ago. Since then, the Internet has advanced from dial-up modems and Web 1.0 applications such as the first web browser (Netscape Navigator) and email, to broadband access and Web 2.0 applications such as Facebook, YouTube and Twitter. To paraphrase Reporters Sans Frontières (Enemies… 2010), a single video shared in the collaborative Web 2.0 age can expose government abuses to the entire world. Indeed, the theoretical sentiment that the Internet offers social

movements greater tools for organization and communication remains just as strong now as in 1999 (Chadwick 2006; Garrett 2006; Lievrouw 2011; West 2011).

But is the argument that Internet access increases protest empirically valid? The purpose of this chapter is to quantitatively test the Internet access argument. The results of this chapter also serve as preliminary models for H2 and H3, in that null findings in this chapter would severely diminish the Internet's explanatory capacity for protest. The chapter proceeds as follows: I first provide a short narrative and illustrative review of my theoretical expectations. I follow with explanation of my data sources and methodology, to include summary statistics and discussion of my dependent, key dependent and control variables. Third, I present and detail my empirical findings from a cross sectional time series analysis. Finally, I conclude by discussing the policy implications of my findings.

Review of Theoretical Expectations

Returning to my model of Internet-mediated dissent, I assess that Internet access acts as a mobilizing structure and thus increases the likelihood of dissent against non-democratic states, which I highlight in Figure 4.1. To review, mobilizing structures are the formal and informational organizational and social connective structures that link groups and foster coordination (Zald and McCarthy 1987). Movements tap into these structures in order to spread information, organize activities, and build group cohesion. The Internet, in turn, is a decentralized, rapid and reasonably anonymous communication tool: groups can use the Internet to communicate almost instantaneously over long distances, and the Internet's decentralized nature (particularly through TCP/IP) fosters unfettered and reliable information transmission. The Internet, then, may decrease personal mobilization costs (in time, material and personal security) while dramatically

increasing protest space (real and/or virtual). As costs decline and space increases, the

perception that the movement will succeed should likewise increase and thus attract more

participants and result in further protest events.

> **H1:** incidents of anti-regime protest increase as Internet use increases inside non-democratic states.

Data and Methods

To measure the relationship between Internet growth and protest, I conduct a cross

sectional time series analysis spanning 1999-2010. I chose this timeframe since World

Bank Internet data are available through 2010 but increasingly sporadic prior to 1999.

Furthermore, while the Internet was available prior to 1999, graphic web browsers were

not widely available until the release of Netscape Navigator in 1994 and Microsoft

Internet Explorer in 1995. Web browsers dramatically improved Internet functionality for

average users (Abbate 1999; Chadwick 2006).

My goal in this study is to analyze patterns of dissent within non-democracies. I use

data from Polity IV to select for non-democracies as the observations to study. POLITY

IV uses a 21-point ordinal scale to measure democratic and autocratic "patterns of

authority" through qualities of executive recruitment, constraints on executive authority,

and political competition (Marshall, et al. 2011)[5]. I included states scored from -10 to +

5 between 1999 and 2010; or, states coded from absolute autocracy (-10) through

POLITY IV's recommended cutoff score for anocracy (+5). I removed states coded as -

66 (missing data), and used the Polity2 conversion for states coded -77 (converted to 0)

and -88 (pro-rated conversion during regime transition. The final set included 88

countries (listed below in Table 4.1) and 863 country/year pairs.

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[5] The Polity IV scale ranges from -10 (pure autocracy) to 10 (pure democracy).

Dependent Variable

For my dependent variable *protest*, I use the variable *anti-government demonstrations* (labeled in original dataset as *domestic8*) from the Cross-National Time-Series Archive (CNTS). These events 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" (Banks 2011, 11). Such anti-government events are seen as characteristic protest events and have been used in previous studies that analyze protest as the outcome variable (Carter, 1971; Gurr 1989; Bond, et al. 1997; Allen 2008). The data are not perfect, however; other scholars have critiqued CNTS for hand coding anti-regime demonstrations through open-source news analysis (Hocke 1998; Nam 2006; Meier 2007). In particular, there are concerns that events from non-democratic states go unreported, or that journalistic biases exaggerate other events (Davenport 2001; Meier 2007). However, I concur with Allen (2008) that CNTS provides the best breadth of reporting despite coding concerns. The number of anti-government demonstrations per year ranges from 0 to 15, with 0 incidents (644 country/year pairs) and 1 incident (79 country/year pairs) the most common counts. A frequency histogram (Figure 4.2) illustrates the range of anti-government demonstrations.

Key Independent and Control Variables

My key independent variable is Internet access. Milner (2003a, 2003b) proposes measuring Internet access through the number of Internet users or per capita. For my key independent variable, then, I operationalize Milner's recommendation with World Bank data (I4CD 2012) on *number of Internet users per 100 people*, which includes private access at home or public access at cafes, work, school and other venues. While World

Bank also has country data on the total number of Internet users, I assess the measuring

per 100 people better captures the proportion of users in each state and prevent

incorrectly magnifying results for larger, more populated states. Internet use across time

and space ranges from no reported users in North Korea for the entire time series to 75

user per 100 people in the United Arab Emirates in 2010, as illustrated in Figure 4.3.

Previous studies have operationalized human rights violations and personal integrity

abuse, economic growth, education, and population size as factors leading to dissent. To

measure repression through human rights violations and personal integrity abuse, I use

U.S. Department of State scores from the Political Terror Scale (Gibney, Cornett and

Wood 2008). The score is an ordinal measure ranging from 1 (countries under secure

rule of law) to 5 (limitless regime terror applied to the entire population). Previous

research programs have found that repression tested through the Political Scale has

expected negative effects on protest inside non-democratic states (Norton and Regan

2005; Dalton and van Sickle 2005; Davenport, Armstrong and Lichbach 2006).

Next, resource mobilization theory posits that economic growth increases the

availability of monetary and temporal resources that protesters can expend as

mobilization resources (McCarthy and Zald 1977). In turn, lack of economic opportunity

can also increase the likelihood of dissent (Muller and Weede 1990; Norris 2006;

Howard 2010). To control for economic development, I use World Bank data on both

GDP per capita in U.S. dollars and annual GDP growth. Studies have also suggested that

increased education positively influences the likelihood of protest by increasing political

knowledge, self expression values and individual senses of political efficacy (Milbrath

and Goel 1977; Inglehart 1990; Jenkins and Wallace 1996; Norris 2006; Howard 2010).

To control for education, I use the CNTS variable *school11*, or total school enrollment (primary through university) per capita. I chose school enrollment over literacy rates since literacy varies little over time, and does not capture breadth of knowledge beyond functional reading and writing skills. Literacy data are also missing for many countries in both CNTS and World Bank. To control for population, I used World Bank data total population converted to the natural logarithm for ease of interpretation (Allen 2008). Finally, another factor assessed to effect dissent is coercive capacity, or resources available to agents that carry out negative sanctions (Hibbs 1973; Ziegenhagen 1986; Davenport 1996). Previous models suggest that social movements will more likely be dissuaded if a regime's coercive agents have access to substantial resources (DeSwann 1977, Randle 1981; Walker and Lang 1988; Davenport 1996). Coercive capacity is measured in World Bank with the variable military expenditures as percent of GDP, which Davenport (1996) also examines. This is not a perfect measure, however, as not all states include police, paramilitary, auxiliary, or other civil forces in their defense budgets. To mitigate this, the Political Terror Scale's U.S. Department of State scores also partially capture intrastate use of coercive force. Summary statistics and a correlation table for the key independent and control variables are respectively detailed below in Table 4.2 and 4.3. Note in the correlation matrix that Internet user per 100 is not statistically correlated with protest. Since Internet user per 100 is statistically significant in the models below, I assess that simple bivariate correlation does not capture the influences of the additional controls on Internet use (e.g. GDP per capita and growth affecting Internet cost). As a control against endogeneity, I set the data as an annual time series and then lagged each independent variable by one year. Specifically, this controls

for simultaneous effects from using the most current annual data to predict the respective annual outcome. I also created a lagged dependent variable protest to test whether or not the occurrence of protest in the previous year affected the likelihood of protest the following year (Allen 2008). I then clustered the model by Correlates of War country codes to control for heteroskedasticity across panels.

I tested my model using negative binomial regression given that protest is a count variable and consists largely of zero protest incidents, as illustrated previously in Figure 4.3. Count variables are, "dependent variables that take on nonnegative integer values for each of n observations" (King 1989b) and are thus presumed to not to be normally distributed (also, Ferrara 2003). Using ordinary least squares (OLS) regression to analyze a count variable, then, is inappropriate since count variables violate linearity and normal distribution assumptions of OLS can result in incorrect statistical findings (Barron 1992; Long 1997; Ferrara 2003).

However, the distribution of the dependent variable protest also violates two fundamental Poisson distribution assumptions. First, the events are heterogeneous, since the probability of an event at time t may be influenced by the occurrence of other events at t. What this means for my specific variable protest is that an underlying factor resulted in the protest event. Referring back to the synthesis model of contentious politics (see Figure 4.1 below), the occurrence of other events at t could reside in the first step (1) social change or the third step (3) opportunity. In recent experience, Mohamed Bouazizi's death was the social change that inspired protest at time t (2010) in Tunisia, while the *25 January* protests in Egypt at time t (2011) were potentially due to perceived shifts in opportunity following the Tunisia uprising.

Second, the dependent variable is affected by contagion, meaning the count number at time t is expected to be influenced by events that occurred at $t-1$. Or, the occurrence of anti-regime protests this year may increase the likelihood of protests occurring next year if the underlying reason for protests remains unresolved. Unlike a true Poisson where conditional variance equals conditional mean, heterogeneity and contagion result in data overdispersion, or variance larger than the mean (King 1988, 1989a, 1989b; Ferrara 2003). As for data overdispersion, this is likely due to outliers. For example, between 1999 and 2010 there is only one instance of the protest event count reaching 15 (Iran in 2009). There also only two 10-count incidents: China in 2004, and Haiti in 2008. Finally, a summary report for CNTS protest data (Table 4.4) indicates that the conditional variance does not equal the conditional mean at any count; therefore, negative binomial regression is appropriate for these data since it accounts for overdispersion.

Results

The results of the negative binomial regression statistically support H1 in the expected direction: holding all other variables constant, a 1 unit increase in Internet access increases protest by .034 (P<.062). The results for the full model are detailed in table 4.5. However, a negative binomial regression coefficient is not interpreted in the same fashion as OLS regression. Thus, I included incidence-rate ratios (IRR) in order to clarify the substantive impact of the independent variables in protest. Similar to logit model odds ratios, IRR's represent the relative change in the incidence rate for a 1-unit change in a particular variable (Allen 2008). Incidence rates can also be converted to percent change through the following formula: $(e^b - 1)*100\%$. Put differently, using the incident rate ratio, a 1-unit increase in Internet users per 100 people increases the incidence rate of

protest by 3 percent. Additionally, since Alpha > 0 (2.30), the negative binomial

regression is an appropriate fit over a standard Poisson regression.

The following example well-illustrates the substance of my findings. Mass

demonstrations erupted in Rangoon, Myanmar on 19 August 2007 in protest against a

sudden increase in fuel prices. Protests escalated throughout August and September, led

by a cross-section of society ranging from students to Buddhist Monks (Burma... 2007).

Throughout the protests, individuals turned to the Internet to find information, post their

own "citizen journalist" data, and to use the Internet as an organizational tool.

As of 2007, Myanmar was only one of thirty countries in the world with less than 1

percent Internet use penetration, with only 101,867 Internet users out of a total population

of 46,915,816 people (ONI 2007; I4CD 2012). However, the Internet had become an

increasingly important information and communication for many citizens, in particular

well-educated, affluent and urban users (ONI 2007). Even after the Myanmar regime

started their brutal crackdown on 26 September, protesters continued to post information

despite the increase in threat. Ultimately, the regime had to cut all Internet and cell

phone service throughout the country in an attempt to quell Internet-mobilized dissent

(U.N... 2007 3). ONI (2007) concluded that, "a relatively small group of Burmese

citizens achieved a disproportionate impact on the global awareness and understanding of

this current crisis, despite operating in a very limited online space where information is

severely controlled (pp. 3)." In short, these findings indicate that the Internet acts as a

power mobilization structure even in physically coercive and restricted information

environments.

As discussed previously, however, I assess there is a curvilinear effect of Internet use

on protest. To test this assessment, I ran a second model which included a squared term of Internet users per 100 people (Table 4.6). In the first model, the effect of Internet use on protest is depressed due to the linear slope. Including the squared term not only more accurately captures the substantive effect of Internet use on protest, but also depicts the point at which the likelihood of protest begins to decrease. First, the second model indicates that for every one unit increase in Internet users per 100 people, the incidence rate of protest increases 23 percent (P<.0001).

I used Xu and Long's (2005) predicted values (prvalue) software tool to predict the rate of protest at different Internet users per 100 values. For my prediction values, I calculated a detailed summary of Internet users per 100 people and predicted rates of protest for the following percentiles: 1, 5, 10, 25, 50, 75, and 95[6]. The predicted results are illustrated in Figure 4.4. The predicted rate of protest remains below 1 from states with 0 to 7 Internet users per 100 people (7 users being the 75th percentile). However, the rate of protest increases from .08 to 1.25 between 7 and 21 users per 100 people (the 90th percentile), and then increases dramatically from 1.25 to 7.62 between 21 and 30 users per 100 people (the 95th percentile). The predicted values suggest that although very low levels of Internet use have negligible influence on protest, Internet use only must reach 10-20 users per 100 people for protests incidents to increase substantively.

To reiterate, the traditional threshold model suggests that the costs of movement mobilization decline once an unspecified threshold of participants is crossed (Rasler 1996). These results not only provide initial support to the traditional threshold model,

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[6] I did not assess the 99th percentile since it consists of only 8 state/year pairs out of 863. Moreover, the predicted rate of protest for state/years in the 99th percentile was extreme: 3,480 percent. Given the low number of state/years, I assess the 99th percentile predicted rate is highly exaggerated.

but also follow Kulikova and Perlmutter's (2007) and Howard's (2010) contention that the Internet's effectiveness as a mobilization medium are apparent at relatively low adoption rates. The model, however, also suggest that the likelihood of protest declines as user rates increase. The negative sign on the squared term in Table 4.6 indicates that the curve opens downward. The IRR is not a meaningful measure for a squared term, though, making it difficult to discern the effect through numbers alone. Thus, I use a predicted probability graph (Figure 4.5) to illustrate the curvilinear effect.

While the previous predictions identify a dramatic increase in protest rates between 20 and 30 users per 100 people, Figure 4.5 highlights a peak at 30 users per 100 people, after which the likelihood of protest begins to taper off. This may be a function of GDP growth and thus increased life satisfaction. A simple tabulation chart analysis indicates that no protests occurred in any state with more than 29.4 Internet users per 100 people: specifically, Bahrain, Kuwait, Malaysia, Morocco, Oman, Qatar, Saudi Arabia, Singapore, Tunisia, The United Arab Emirates, and Venezuela. Note, however, that the steep drop in protest rates is likely overly exaggerated in the graph, as there are only 20 state/years where Internet use exceeds 40 users per 100 people.

Still, a review of the states' characteristics identifies factors that illustrate the curvilinear effect. Five of the countries are Organization of Petroleum Exporting Countries (OPEC) members. Eight had GDPs greater than $10,000 in 2010; and of those eight, four had GDPs greater than $20,000. Seven of the eleven states were scored as pure autocracies in 2010 (Polity IV score -10 to -6). Five of the states spend greater than 4 percent of GDP on defense: in chapter 5, I find that 88 percent of all protests between 2006 and 2010 occur in states that commit less than 4 percent GDP to defense. This

analysis lends further support to previous finding that suggest economic growth and coercion both suppress dissent, albeit for different reasons. On one hand, higher GDP per capita and GDP growth provide citizens greater economic opportunity and thus reduce economic-driven grievances. On the other hand, higher defense spending suggests greater coercive capacity and associated means of quelling dissent through force. Tunisia, however, is an outlier on this list in that the regime swiftly collapsed in January 2011--due potentially in part to Internet mobilization (Anderson 2011).

The control variables also present interesting findings (Table 4.5). While GDP per capita is not statistically significant, a 1 unit increase in GDP growth decreases the likelihood of anti-regime demonstrations by 7 percent. This can be explained by increased quality of life associated with increasing income, which decreases the likelihood of anti-regime protest (Norris 2006; Howard 2010). The rate of protest also increases 68 percent for each unit increase in the total population. This aligns with previous findings that suggest increasing populations place additional burdens on the state and make it more difficult for regimes to meet societal demands (Goldstone 1991; Henderson 1993; Poe and Tate 1994; Davenport 2000). Next, while it is admittedly a crude measure of coercive capacity, protests also decrease as military spending/GDP ratios increase, with each unit increase decreasing the rate of protest by 16 percent. This finding suggests that the state's coercive capacity has a chilling effect on anti-regime protests (Davenport 1996). Surprisingly, incidents of protest increase as political terror increases, with a 45 percent increase in rate of protest for each unit increase of the Political Terror Scale's USDS score. This diverges from previous works that find political terror decreases protest (Norton and Regan 2005; Dalton and van Sickle 2005;

Davenport, Armstrong and Lichbach 2006). On explanation is that grievance towards political terror is the social change trigger that fosters mobilization. Finally, education as measured through school enrollment is not statistically significant.

Finally, I applied Long and Freese's (2006) *SPost* post-estimation utility to determine how well my model fit the data (Table 4.7)[7]. The first test examines how well my negative binomial regression model predicted the number of protests (up to a count of 9) compared to the actual probability of protest events. The sum of differences between predicted and actual probabilities equals .038. The test did indicate that the zero-inflated Poisson and zero-inflated negative binomial had smaller sums of differences (.031 and .024, respectively), but a follow-on comparison of Bayesian Information Criterion (BIC) scores indicated that negative binomial regression is the preferred model. Thus, I assess my model accurately explains the occurrence of anti-regime protests.

Conclusions

In this chapter I used negative binomial regression to test H1, or that anti-regime dissent increases as Internet use per capita increases inside non-democratic states. The results statistically and substantively supported my hypothesis. These findings suggest that increases Internet access acts as a dissent mobilizing structure at relatively low user rates. Additional, analysis of non-linear relationships finds that while Internet access initially increases the likelihood of protest, the effects of access decrease as more and more users come on line. Examination of state characteristics reveals that a large proportion of high-Internet use states have either GDPs per capita above $10,000 per year or spend more than 4 percent on defense. While these relationships are not conclusive,

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[7] More information on SPost is available at http://www.indiana.edu/~jslsoc/spost.htm.

they present lucrative avenues for future research. I also found support for other factors which have been previously examined as protest causal factors, to include human rights violations and personal integrity abuse, economic growth, population size, and state coercive capacity. The control variables were also statistically and substantively significant and, with the exception of political terror, moved in the expected directions. While previous research suggested that coercive capacity reduced the likelihood of protest, I find that coercion is a trigger for protest.

A key goal of this project is to bridge traditional dissent and repression literature with more recent literature on Internet-mediated dissent. In particular, this chapter examined whether or not the Internet acts as an effective mobilizing structure within the synthetic model of contentious politics (McAdam, McCarthy and Zald 1996; McArthur, McAdam and Tilly 2001). In particular, my findings linked the traditional social movement position that effective mobilization depends of vibrant social and communication networks (McCarthy and Zald 1977; Tarrow 1998) with communication literature position arguing that the Internet fosters both digital and physical mobilization (Diani 2003; Dahlgren 2005; Howard 2010; Lievrouw 2011). Based on these results, I assess that Internet access appears to be an effective mobilization structure. However, regimes also have tools with which they can attempt to maintain control of their networks. In the next chapter, I test whether or not technical, soft or combined censorship programs constrain the Internet's efficacy as mobilization structure.

Figure 4.1: Internet Access as a Mobilizing Structure
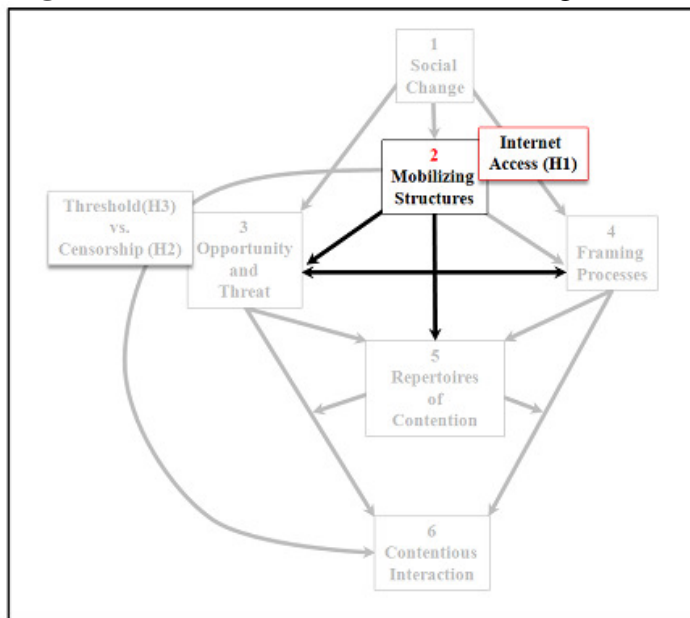
Figure 4.2: Frequency of Anti-Government Demonstrations
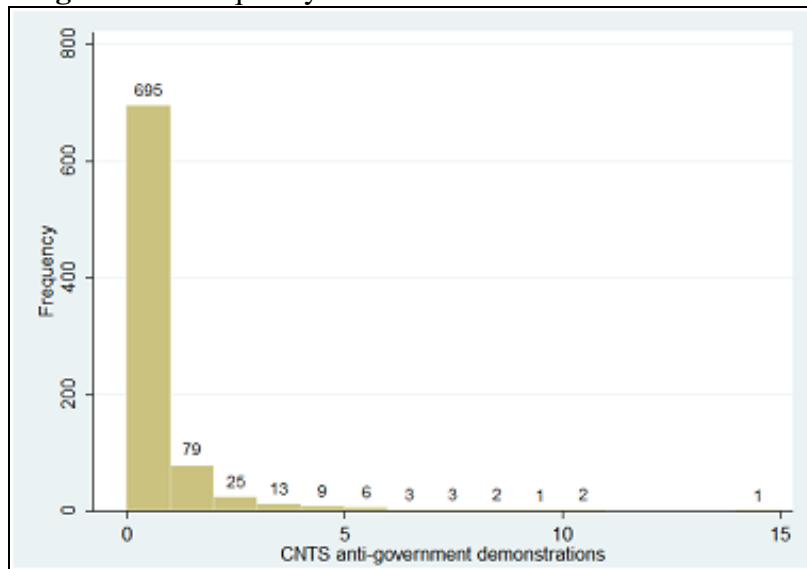
Figure 4.3: Frequency Histogram, Internet Users per 100 People
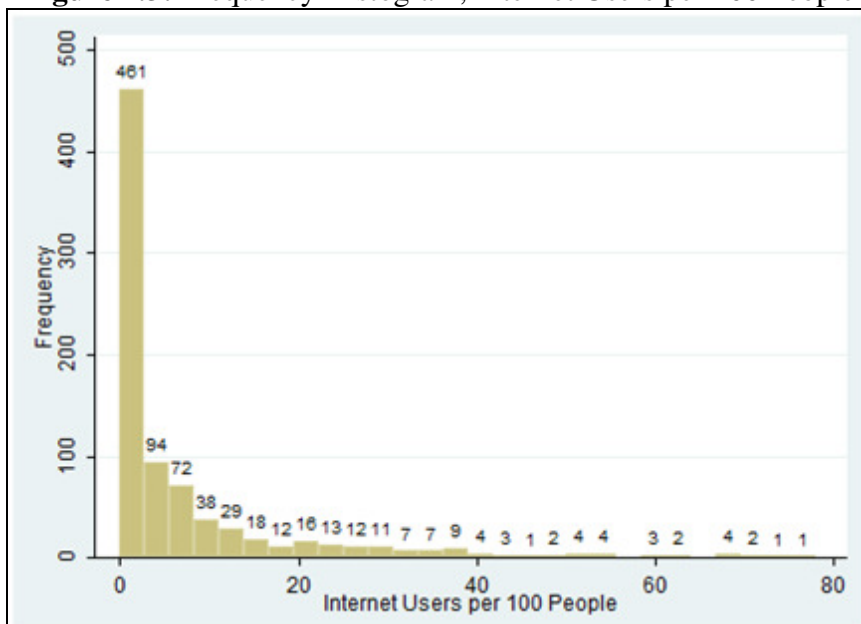
Figure 4.4: Linear Predicted Effect of Internet Use on Protest
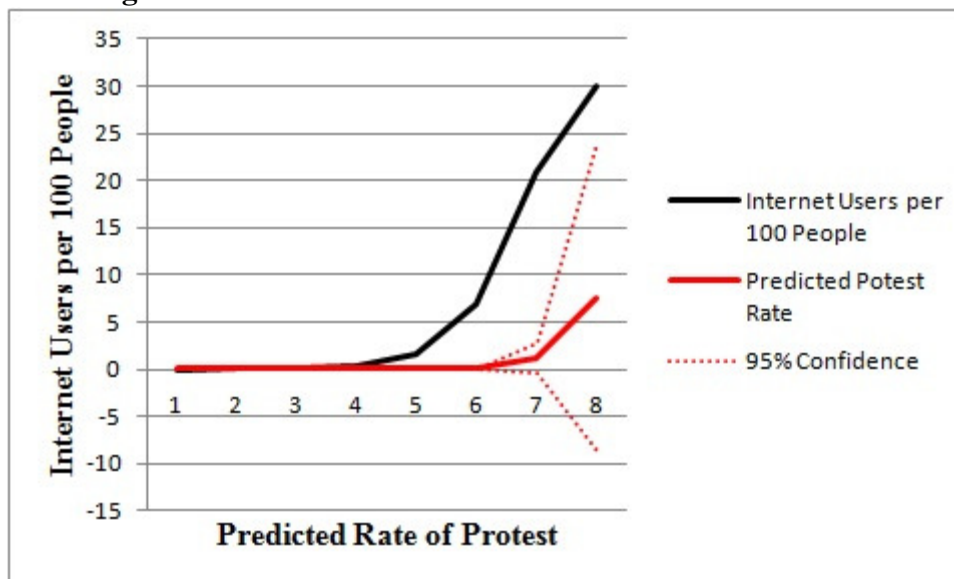
Figure 4.5: Curvilinear Predicted Effect of Internet Use on Protest
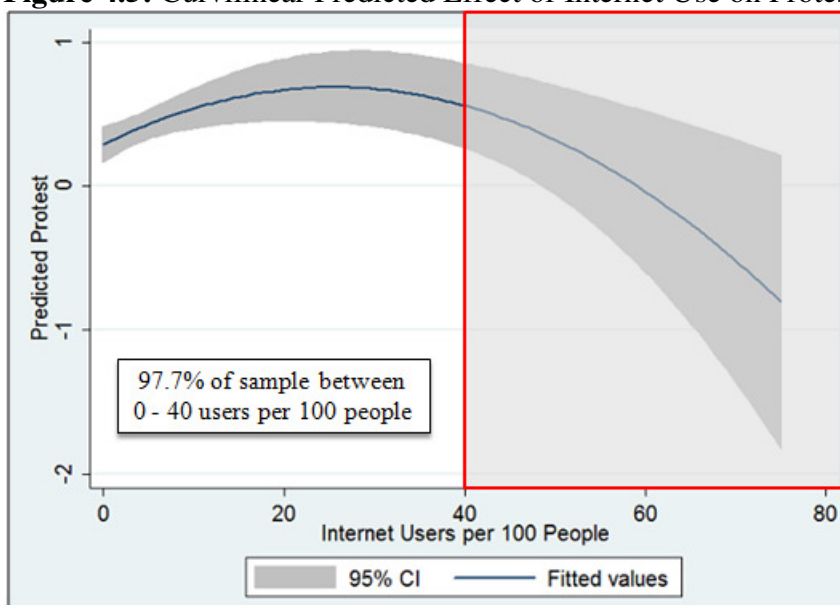
Table 4.1: List of Countries

Afghanistan	Gambia	Papua New Guinea
Albania	Georgia	Peru
Algeria	Ghana	Qatar
Angola	Guinea	Russia
Armenia	Guinea-Bissau	Rwanda
Azerbaijan	Haiti	Saudi Arabia
Bahrain	Iran	Senegal
Bangladesh	Iraq	Singapore
Belarus	Jordan	Solomon Islands
Bhutan	Kazakhstan	Somalia
Burkina Faso	Kenya	Sri Lanka
Burundi	Korea North	Sudan
Cambodia	Kuwait	Swaziland
Cameroon	Kyrgyzstan	Syria
Central Afr. Republic	Laos	Tajikistan
Chad	Lesotho	Tanzania
China	Liberia	Thailand
Comoros	Libya	Togo
Congo Brazzaville	Madagascar	Tunisia
Congo Kinshasa	Malawi	Turkmenistan
Cote d'Ivoire	Malaysia	UAE
Cuba	Mauritania	Uganda
Djibouti	Morocco	Uzbekistan
Ecuador	Mozambique	Venezuela
Egypt	Myanmar	Vietnam
Equatorial Guinea	Nepal	Yemen
Eritrea	Niger	Zambia
Ethiopia	Nigeria	Zimbabwe
Fiji	Oman	
Gabon	Pakistan	

Table 4.2: Summary Statistics for Independent Variables, Lagged 1 Year

Variable (N)	Mean	Std. Dev.	Min	Max
Internet Users per 100 People (749)	6.62	11.57	0	75
Political Terror Scale, USDS Scores (774)	3.09	.96	1	5
GDP per Capita (802)	4,219	9,383	87	79,303
GDP Growth (733)	3.21	6.25	-32.23	56.83
Total School Enrollment (729)	.20	.06	.07	.38
Total Population, Logged (763)	16.10	1.49	12.92	21.01
Military spending as Percent of GDP (602)	3.16	3.34	.18	39.62

Table 4.3: Correlation Matrix

	Protest	Internet Users per 100	Political Terror Scale	GDP per Capita	GDP Growth	School Enrollment	Total Population	Military % GDP
Protest	1.00							
Internet Users per 100	0.0194	1.00						
Political Terror Scale	0.1509*	-0.3514*	1.00					
GDP per Capita	-0.0691	0.6893*	-0.4349*	1.00				
GDP Growth	-0.0194	-0.0819*	0.0087	-0.0812*	1.00			
School Enrollment	0.0228	-0.0748	-0.0819*	-0.2129*	0.0601	1.00		
Population	0.3472*	-0.0292	0.5442*	-0.2766*	0.0805*	-0.0105	1.00	
Military Spending % GDP	-0.0725	0.0893*	-0.1308*	0.1454*	-0.1952*	-0.1365*	-0.1368*	1.00

Note: *$p \leq 0.05$

Table 4.4: Overdispersion, Conditional
Variance, and Mean

Protest Count	Mean	Variance	N
0	6.73	149.48	610
1	5.71	58.40	62
2	4.15	33.93	21
3	7.90	70.15	10
4	9.76	117.39	8
5	6.23	136.47	5
6	13.40	133.25	3
7	8.34	154.04	3
8	5.40	.	1
9	1.95	.	1
10	11.13	48.21	2
15	10.24	.	1

Table 4.5: Effect of Internet Use on Protest,
Negative Binomial Regression Model

	Protest β(se)	Incidence Rate Ratio %
Protest (lagged)	.158	
	(.132)	
Internet Users per 100 People	.034*	3%
	(.020)	
Political Terror Scale	.370**	44%
	(.177)	
GDP per Capita	-.00005	
	(.00005)	
GDP Growth	-.067**	-6%
	(.033)	
Total School Enrollment	6.08	
	(2.62)	
Total Population, Logged	.594***	81%
	(.168)	
Military Spending as a % of GDP	-.150**	-14%
	(.077)	
Intercept	-13.52	
	(2.91)	
n	505	
Log Alpha	1.02	
Alpha	2.78	
Wald Chi-Square	117.96	
Prob > Chi-Square	.00001	

Sources: Correlates of War (Sarkees, et al. 2010), Cross-National Time-Series Data Archive (Banks 2011), Polity IV (Marshall, et al. 2009), Political Terror Scale (Gibney, et al. 2008); World Bank (I4CD 2012).

Notes: the dependent variable *protest* is a count measure of anti-regime demonstrations per year ranging from 0 to 15. Two-tailed tests with robust standard calculated by country code clustering.

*p ≤ 0.1, **p ≤ 0.05, ***p ≤ 0.01

Table 4.6: Effect of Internet Use on Protest,
with Internet Users per 100 Squared Term

	Protest β(se)	**Incidence Rate Ratio %**
Protest (lagged)	.168	
	.111	
Internet Users per 100 People	.209***	23%
	(.021)	
Internet Users per 100 People (squared)	-.006***	.7%
	(.001)	
Political Terror Scale	.379**	46%
	(.173)	
GDP per Capita	-.00003	
	(.00005)	
GDP Growth	-.078**	7%
	(.031)	
Total School Enrollment	3.03	
	(2.14)	
Total Population, Logged	.519***	68%
	(.145)	
Military Spending as a % of GDP	-.177**	-16%
	(.075)	
Intercept	-12.05	
	(2.47)	
n	505	
Log Alpha	.836	
Alpha	2.30	
Wald Chi-Square	179.65	
Prob > Chi-Square	.00001	

Sources: Correlates of War (Sarkees, et al. 2010), Cross-National Time-Series Data Archive (Banks 2011), Polity IV (Marshall, et al. 2009), Political Terror Scale (Gibney, et al. 2008); World Bank (I4CD 2012).

Notes: the dependent variable *protest* is a count measure of anti-regime demonstrations per year ranging from 0 to 15. Two-tailed tests with robust standard errors calculated by country code clustering.

*p ≤ 0.1, **p ≤ 0.05, ***p ≤ 0.01

CHAPTER 5

EFFECTS OF INTERNET CENSORSHIP ON PROTEST

> The same technologies which give voice to democratic activists living under authoritarian rule can also be harnessed by their oppressors. Digital information can be easily tracked and traced, and then tied to specific individuals who themselves can be mapped in space and time with a degree of sophistication that would make the greatest tyrants of days past envious.

> Ronald Deibert and Rafal Rohozinski, Liberation vs. Control

Introduction

Results from the previous chapter suggest that Internet access is a remarkable

mobilization structure, and case examples indicate that regimes have taken steps to

prevent Internet mobilization. For example, Vietnam has invested millions of dollars

over the last decade into Internet infrastructure in a bid to capitalize on the Internet's

economic potential, including campaigns to get more users online: by 2011, 31 percent

of Vietnamese were connected (ONI 2007; RSF 2011). Yet, the regime still weighs

access carefully against maintaining information control, with access rules strictly

regulated from the highest levels of government. All information accessed, sent and

stored on the Internet must comply with all laws governing the press and publication, a

2006 law requires ISPs to record user identities and their browsing history for one year,

and users are also formally deputized to report banned content (ONI 2007).   Further, all

venues that provide public Internet access must install filtering and monitoring software,

and a 2010 law mandated that all links on Internet café system web pages be rendered

inoperable between 11 p.m. and 6 a.m. (Harvey 2010; RSF 2011). The list of blocked

content includes violence, pornography, government criticism and sensitive topics such

as disputes with China, and reaction against violators is often swift: in 2003 alone, the

regime blocked 2,000 websites and arrested 4 cyber-dissents: 10 percent of all arrests

worldwide in 2003, according to Reporters Sans Frontières (AP 2003; ONI 2007). More recently, in 2009 Vietnam blocked Facebook in order to prevent online mobilization, and by 2011 Vietnam was the second largest detainee of "netizens" (RSF 2011).

Of course, Vietnam is not the only case, and examples of Internet censorship abound in the literature (Kalathil and Boas 2003; Deibert, et al. 2008, 2010; Howard 2010). Yet, the literature does not offer a systemic picture of how Internet censorship affects available opportunity or perceived threat. This chapter builds on my previous findings by overlaying Internet censorship on top of Internet access. The chapter will proceed as follows: first, I review the theoretical expectations for the effects technical, soft and combined censorship programs on Internet-mediated dissent. Next, I discuss data operationalization for my hypotheses, then sequentially present and discuss the results of the tests. Finally, I conclude the chapter with a summary of the results and brief discussion on the implications of my findings.

Review of Theoretical Expectations

Returning to opportunity and threat (3) in my model of Internet-mediated dissent (illustrated in Figure 5.1), I assess that Internet censorship through both technical and soft (psychological) controls reduce opportunity structures available to social movements. Internet censorship reduces political opportunity by rendering the Internet unavailable as a mobilizing structure and/or increasing perceived threat amongst users. Again, censorship is not necessarily overt: while replacing blocked pages with dire warning banners inspire fear, filters can also redirect users to fake "file not found" pages to make users think the blocked page no longer exists. Still, fear has its place--a banner warning such Figure 5.2 may be sufficient threat for deterring users from accessing illicit content.

Further, I assess that combined technical and soft filtering programs will have greater chilling effects on Internet-mediated dissent than employment of either method alone. My assessment ties into Boas's (2006) contention that states only need to impose effective rather than perfect Internet controls to deter users, and his definition includes both technical and psychological control measures. However, I also expect that as Internet use crosses an unspecified threshold, censorship will become less effective as user levels overwhelm regime's capacity to filter state networks. As the user base increases, the costs of technical filtering programs likewise increases in sophistication, personnel requirements and actual material costs. At the same time, the proportion of technically savvy users also increases, which includes knowledge of how to circumvent Internet controls, let alone basic awareness that filters are in place (indeed, regimes have been forced to filter specifically for circumvention tools, which are detailed in the data and methods section). Specifically, I hypothesize that:

H2a: technical Internet censorship programs decrease the likelihood of protest inside non-democratic states.

H2b: soft Internet censorship programs decrease the likelihood of protest inside non-democratic states.

H2c: combined Internet censorship programs decrease the likelihood of protest inside non-democratic states to a greater extent than the two methods alone.

H3: As in Internet use increases, the effectiveness of Internet censorship inside non-democratic states decreases.

<div align="center">Data and Methods</div>

As with H1 in chapter 4, I conduct a cross sectional time series analysis using negative binomial regression and operationalize my outcome variable *protest* through the CNTS variable anti-government demonstrations. For my key independent variable *censorship*, I

use OpenNet Initiative (ONI)[8] Internet filtering data that are collected by researchers who attempt to access restricted websites from within target states. ONI's current dataset (November 2011) includes 74 states, listed in table 5.1. Note that not all the tested countries are autocracies or anocracies: for example, ONI conducted tests from within Australia, Hungary, Norway, and Sweden in 2009, all of which are ranked as pure democracies (10) on the Polity IV scale.

ONI examines whether or not potentially objectionable websites are actually filtered by the tested country. To test for Internet censorship in a given state, ONI first checks two lists of websites: a global list and a local list. The global list is constant and is comprised of relevant international websites containing provocative or objectionable English language content (ONI 2011). The local list tests for unique filtering behavior in each country. The global list may include the widely popular New York Times website, while the local list may consist of language-specific Wikipedia pages (an online encyclopedia) or regional newspaper sites. For example, in 2008 ONI monitored Chinese Internet traffic to Amnesty International (global) and the Hong Kong-based *Apple Daily* newspaper (local) (Deibert, et al. 2010). The tests are packaged into a software client, which ONI distributes to researchers within states suspected of engaging in Internet censorship. The lists are tested simultaneously in both in the suspect country and a country with no filtering regime, and are also conducted over several days or weeks. The non-filtering state and time controls separate normal connectivity errors from intentional filtering. ONI divides the types of filtered content into four categories:

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[8] ONI is collaborative consisting o the University of Toronto's Munk School of Global Affairs, Harvard University's Berkman Center for Internet & Society, and the SecDev Group, an Ottowa-based cyber security company (http://secdev.ca/index.php).

- **Political filtering** is used to block sites that express views in opposition to the government.
- **Social filtering** is used to block socially sensitive and offensive material, such as gambling, drugs and pornography.
- **Security filtering** blocks content related to armed conflicts, border disputes, separatist movements, and militant groups.
- **Internet tool filtering** blocks sites that attempt to evade technical controls, such as proxy servers, Voice over Internet Protocol (VoIP) services and free email services.

ONI then ranks the results for each category within a 5-scale ordinal measure:

- **Pervasive (4):** Filtering that incorporates both depth, or blocking a large portion of the targeted content in a given category; and breadth, or filtering in several categories.
- **Substantial (3):** Filtering with either depth or breadth: a number of categories are subject to a medium level of filtering (depth); or, across many categories (breadth).
- **Selective (2):** Narrowly targeted filtering that blocks a small number of specific sites across several categories; or, filtering that targets a single category or issue.
- **Suspected (1):** Connectivity irregularities suggest the presence of filtering, but ONI cannot confirm that inaccessibility is the result of deliberate filtering.
- **No evidence (0):** ONI testing did not uncover any evidence of websites being blocked.

Deibert, et al. (2008) and ONI also provide narrative evidence for cases in which states applied soft control methods; however, ONI does not have a similar ordinal scale for soft filtering methods. Soft (or, psychological) controls are methods that tap into cultural and behavior norms to influence user behavior: in other words, convincing users that accessing forbidden information is wrong. For example, Internet cafés in Oman must be designed with screens facing outward so that café supervisors can observe what café patrons are viewing (ONI 2009). Users thus refrain from accessing forbidden websites in order to avoid the shame from being caught. Other social controls can be embedded in the culture itself: to reiterate, Wheeler (2006) finds that Kuwaitis generally consider it rude to discuss political information with people they do not know.

To assess whether or not states used soft psychological control measures, I analyzed ONI country reports published in *Access Denied* (Deibert, et al. 2008), *Access Controlled* (Deibert, et al. 2010), and on ONI's public website (http://opennet.net/). Narrative

examples include use of café monitors (China, Oman), banner webpages that warn users they are being monitored (Iran), cafés collecting user's identification before allowing them onto systems (Algeria, Egypt), and laws encouraging users to report illicit content (Vietnam). Using a simple binary variable s*oft filtering,* I coded any state that ONI qualitatively assessed as using psychological controls as 1 and those not documented as using psychological controls as 0.

 As illustrated in table 5.2, censorship pervasiveness varies across countries and categories. For example, Iran maintains universally strict controls across the entire breadth of content and through a variety of technical and psychological controls. In contrast, Oman is particularly concerned about protects values and mores, and thus focuses more efforts in censoring information related to pornography, drugs, and homosexuality, and other social categories (ONI 2009).

Rather than test each technical category separately, I created an additive variable for each tested state. To create the additive scale, I summed all scores for each country, with the new scale ranging from 0 to 15. By doing so, I assess I can best analyze not only the breadth of technical censorship, but also the magnitude. That is, I assess that states censoring more than one information category have more robust censorship programs that states that either focus on fewer information categories and/or demonstrate less pervasive censoring across categories. Figure 5.3 illustrates the technical censorship value range for a single year (2009).

The new count empirically aligns with the levels of technical censorship sophistication. For example, literature cites China and Iran as having the most sophisticated censorship regimes (Kalathil and Boas 2003; Schwankert 2007; Roberts and

Palfrey 2010). In contrast, Algeria and Egypt depend almost entirely on soft control measures to enforce Internet law compliance (Kalathil and Boas 2003; Deibert, et al. 2008, 2010). Finally, I lagged the censorship variables by one year to control for simultaneous effects of censorship on protest.

However, the data present several problems. First, there are gaps in ONI's technical filtering data time series availability: while the current dataset spans 2007-2011, each of the included states have only been tested once since 2007. For example, Afghanistan was tested in 2007, but not from 2008 through 2011. In contrast, Bangladesh was tested in 2011, but not from 2007 through 2010. Thus, time series analysis is not possible for these data. However, the three basic technical censorship methods, IP blocking, DNS tampering, and URL blocking, have not changed substantively between 2007 and 2011; psychological methods have also remained stable over the short time frame (ONI 2011). Deibert, et al. also tested 40 countries in 2006 using the same ONI criteria detailed above and published their results in their book *Access Denied* (2008), which I added manually. Assuming that neither technical nor social censoring varied substantively, I then interpolated testing data forward from the most recently available test dates. In cases where states were tested twice, I interpolated the test results forward from the respective test years: for example, Deibert, et al. (2008) and ONI (2011) conducted tests in Azerbaijan, Ethiopia and Kazakhstan respectively in 2006 and 2008. Therefore, I interpolated the 2006 findings published in *Access Denied* through 2007, and the 2008 findings published in the ONI dataset through 2010.

Additionally, ONI does not overtly describe how states are selected for testing. Indeed, of the 74 countries tested, 28 are democracies per the Polity IV scale. ONI

country reports suggest that some states are purposely selected based on assessed

censorship, while other states are not selected due to low Internet diffusion (notable sub-

Saharan African states). The *N* for each region are depicted in Table 5.3. Since I am

examining only non-democracies, the *N* for each region only captures non-democracies

tested by ONI. Thus, Table 5.3 illustrates the bias towards Middle East and Asian states.

Given the poor regional representation due to both ONI's sampling and my own analysis

of non-democracies, I restricted my analysis to a Middle East/Asia regional model, which

offers the largest regional representation relative to my non-democracy sample. I also

test the model with the same protest controls from chapter 4: Internet users per 100

people, the Political Terror Scale Department of State scores, GDP per capita, GDP

growth, total school enrollment, the natural log of the state's total population, and military

spending as percent of GDP. However, I simplified these models by removing the

Internet users squared term.

I first test technical and soft filtering methods separately to examine their individual

efficacy (H2a and H2b), then interact technical filters with social controls (H2c) to test

for synergistic effects (Boas 2006). In an interaction, an increase in X is associated with

an increase in Y when condition Z is met, but not when condition Z is absent. The

interaction model asserts that the effect of a change in X on Y depends on the value of

variable Z (Braumoeller 2004; Brambor, Clark and Golder 2005). Specifically, I interact

technical filters and social controls to evaluate the influence of technical filters (X) and

social controls (Y) when both forms of filtering are present (Z). Finally, I test H3, or the

assessment that as Internet use per capita increases, the effectiveness of Internet

censorship inside authoritarian regimes decreases. For this model, I firs test an additive

technical and soft censorship variable with the full range of Internet users per 100 people, then graph the results at different levels of Internet use.

<div align="center">Results</div>

The results of the first test (Tale 5.4) do not statistically support H2a: technical censorship neither increases nor decreases the likelihood of protest. Indeed, in this model Internet use increases the rate of protest by 6 percent even with the primary technical censorship variable. As for control variables, military spending as a percent of GDP (coercive capacity) also decreases protest by 53 percent. As with H1, I assess that the same causal mechanisms are in effect; that is, wealth increases life satisfaction and thus reduces the motivation to protest (Norris 2006), while coercive capacity reduces mobilization through fear (Davenport 1996).

Moreover, total population increases the incidence rate of protest by 248 percent, which lends support to previous scholarship that suggests population size challenges regime's ability to coerce (Poe and Tate 1994). School enrollment also increases the incidence rate of protest by 152 percent, which supports previous research that suggests increasing education likewise increases the likelihood of dissent (Norris 2006; Howard 2010). Higher education also suggests increased technological savvy and thus the knowledge to both use the Internet effectively and evade technical censors (Mossberger, et al. 2008; West 2011). Finally, while GDP per capita is statistically significant it is not substantively significant.

The next test examined hypothesis H2b, or the effect of soft control measures on protest (Table 5.5). The results support H2b in that soft controls decrease the incidence rate of protest by 99 percent. But as discussed previously, the variable is a blunt, binary

measure of soft control and does not capture the magnitude of control. Moreover, only 14 of the 129 observations did not have soft controls in place between 2006 and 2010. Given the almost-ubiquitous use of soft controls across cases and the lack of variation with a binary variable, the magnitude of this finding is likely excessively high. As for controls, protest in the previous year decreases the incidence rate of protest at time t by 21 percent. GDP growth continues to reduce the likelihood of protest while population size dramatically increases the likelihood of protest.

The final test within my second hypotheses set (H2c) tested the interactive effects of technical filters and soft controls on protests (Table 5.6). The results do not support my hypothesis that multiplicative effects will have greater chilling effects on protest compared to technical or soft methods alone. As with previous tests, the control variables appear to have the greatest influence on the incidence rate of protest: GDP growth substantively decreases the incidence rate of protest 926 percent), while population size substantively increases the incidence rate of protest (300 percent). Overall, though, this model is statically problematic. The number of cases between H2b and H2c drops from 60 to 30, which reduces the degrees of freedom and the negative binomial model's explanatory power (let alone that an N of 30 is barely meets the central limit). Indeed, the N was so small that the Wald test could not be calculated.

Therefore, I took a different tack on H2c by examining combined censorship as an additive rather than multiplicative variable. Since soft control is a binary variable, I assess an additive model is theoretically tenable since it adds an additional count to states using both methods vis-à-vis states using only one of the censorship methods. This test, depicted in Table 5.7, presents an intriguing result: the incidence rate of protest actually

increases by 14 percent with the additive variable. However, the effect does not appear

substantively significant. A graph of the predicted rate of protest (Figure 5.4) shows that

the increased rate of protest is measured in decimals. In fact, the effect is so small that I

left out the confidence interval lines, since they were too narrow to effectively illustrate.

From this, I again find no support for H2c. The controls, however, continue to move in

the same directions and at comparable magnitudes to previous models. GDP growth and

military spending as percent of GDP continue to predict decreased incidence rates of

protest, while increasing population suggests increases incidence rates of protest.

Moreover, the additive model also finds that school enrollment increases the incidence

rate of protest by 5 percent.

The previous results admittedly make testing the final hypothesis (H3) tricky. To

review, I hypothesize that the effectiveness of censorship decreases as the number of

Internet users increases. I assessed that the best approach was to test whether or not the

additive censorship model was conditioned varying Internet use rates. In the previous

chapter, I found a curvilinear effect of Internet user rates on protest, with the likelihood

of protest increasing rapidly from 7 to 20 Internet users per 100 people, another dramatic

increase between 20 and 30 per 100 people, followed by a tapering and decline between

30 and 40 users per 100 people (Figure 4.5, page 75). To test for conditioning effects of

Internet user rates on censorship, I graphed a predicted probability chart based on for

levels of Internet use: less than 7 per 100 people, 10 to 20 per 100 people, 20 to 30 per

100 people, and greater than 30 per 100 people. The results are illustrated in Figure 5.5.

The results of these predictions dovetail with the curvilinear effect found in Chapter 4:

despite censorship efforts, the rate of protest increases as Internet user rates increase.

However, these predictions also follow the tapering off at user rates greater than 30 per 100 people. Recall, however, that the incidence rate of protest actually increases when controlling for additive censorship, albeit the effect appears negligible per Figure 5.4. Thus, while these predictions suggest that censorship methods are ineffective until states reach 30 or more Internet users per 100 people, reduced protest at higher Internet use levels can potentially be explained by not only by coercion, but also by the increased quality of life suggested by higher Internet use rates and GDP growth controls.

In summary, technical controls do not appear to decrease the likelihood of protest; while soft controls alone may have a chilling effect (although the binary measure likely exaggerates the magnitude). Yet, the *25 January* uprising in Egypt brings this explanation into question, as Internet mobilization escalated despite soft controls. In fact, almost 10 percent of all protests across the Middle East and Asia occurred in Egypt (8 out of 84), a country that depended solely on soft Internet control measures. It is also worth noting the control variables that consistently have substantive effects on protest: GDP growth, population, and coercive capacity.

First, GDP growth decreases the rate of protest, which suggests that increased economic opportunity mitigates grievances. Second, the state's total population size appears to have a powerful positive influence on protest occurrence. As found in chapter 4, this supports previous findings that suggest large populations strain states' coercive abilities. Third, state coercive capacity has strong negative influences on the outbreak of protest. A relevant illustration is the rise and ultimate failure of the 2009 post-election protest movement in Iran. Despite the movement's initial successes, the regime ultimately brought crushing coercive powers to bear against the movement.

Conclusions

In this chapter, I examined whether technical, soft, or combined Internet censorship programs reduced available opportunity structures either through rendering the Internet unavailable or through increasing perceived threat. Results of these tests were mixed: on the one hand, technical censorship had no effect on protest; while on the other hand, soft controls decreased incidence of protest. Moreover, the multiplicative effect of technical and soft controls was not statistically significant, while the additive effect negligibly increased the incidence rate of protest. I also theorized that Internet use would eventually cross a threshold after which censorship was no longer effective. The results of this test closely mirrored the curvilinear effect found in Chapter 4, in that Internet user growth up to 30 users per 100 likewise increased the incidence rate of protest despite controlling for censorship. However, the likelihood of protest tapers off above 30 Internet users per 100 people. Additionally, three control variables remained consistently strong across all three models. Both economic growth and coercive capacity decreased the likelihood of protest, while state population levels increases the likelihood of protest. Overall, the results of my empirical tests suggest that the Internet is an effective protest mobilizing structure despite censorship. But, of the two censoring methods--technical and soft--soft controls appear to have the greatest chilling effect on Internet mobilization.

Traditional dissent and repression literature suggests that social movements inside politically restrictive states will have few political opportunity structures with which challenge regime policies, although in some cases restrictions act as the grievance trigger for social change. Moreover, states can apply coercion to increase real and perceived threat, which discourages individuals from mobilizing out of fear of retaliation. The

Internet literature is divided on these contentions, with some arguing that the Internet's

architecture is resistant to regime tampering (Langman 2005; Chadwick 2006) and others

arguing that states have the upper hand with their suites of technical and psychological

control measures (Lessig 2006; Clapp 2007). My findings offer more empirical support

for the former rather than the latter argument, in that my results suggest censorship has

little efficacy against protest.

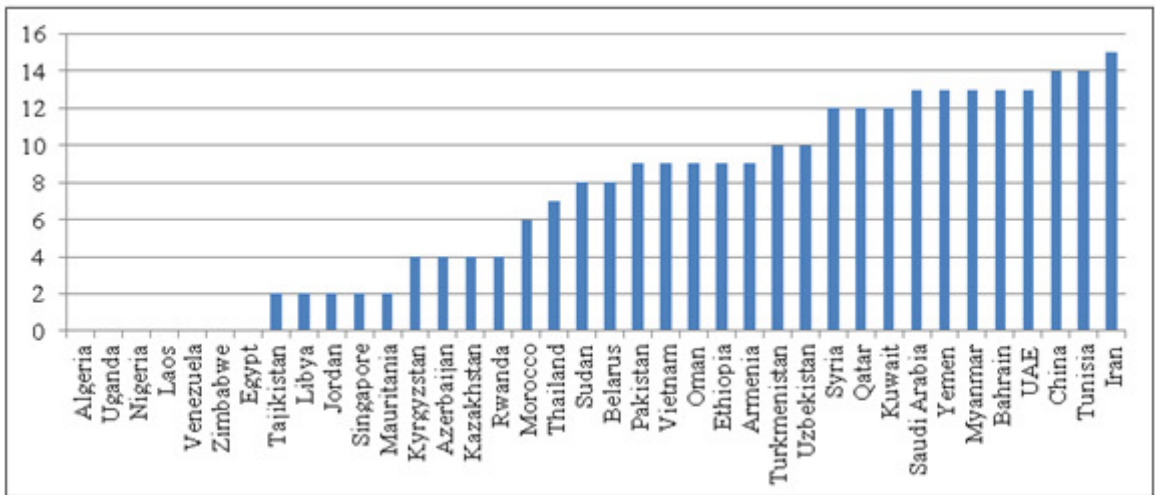**Figure 5.1:** Censorship: Opportunity and Threat
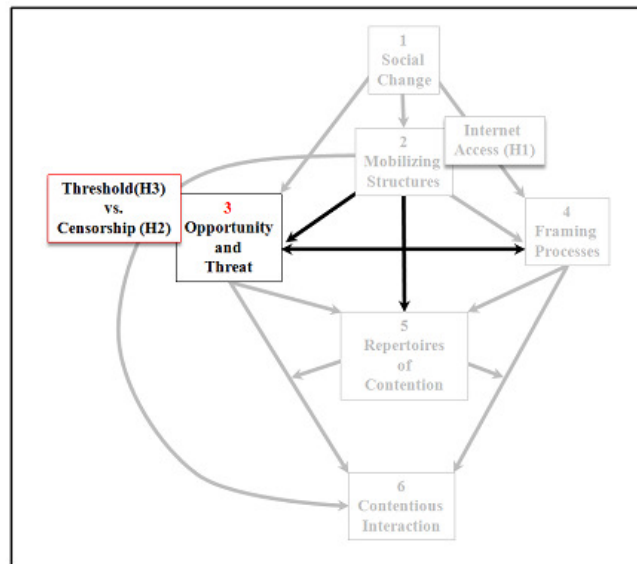
Figure 5.2: Warning Banner Example
from a Myanmar Internet Café

Source: ONI 2007, 5

Figure 5.3: Technical Censorship Count Range, 2009

Figure 5.4: Predicted Rate of Protest, Controlling for Censorship
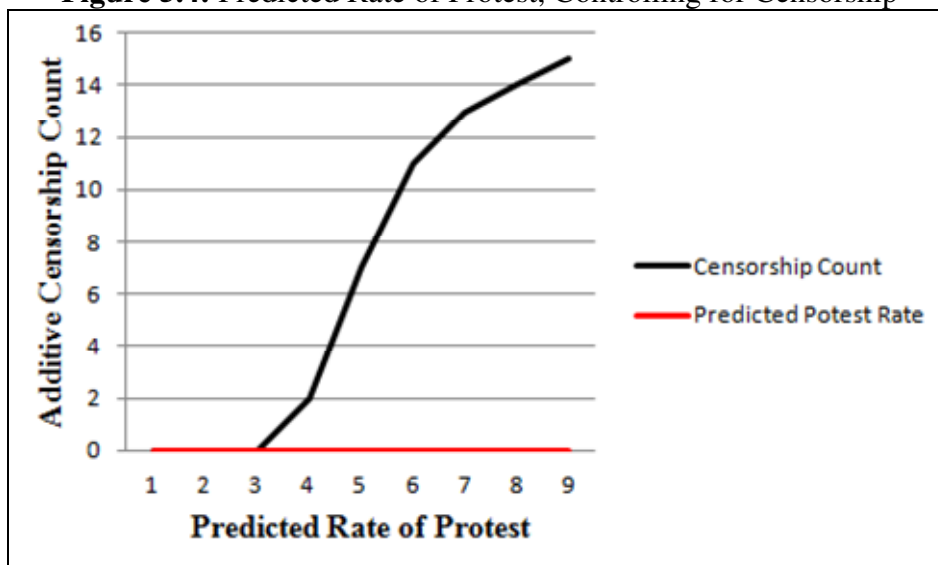
Figure 5.5: Predicted Rate of Protest, Conditioned on Number of Internet Users per 100 People
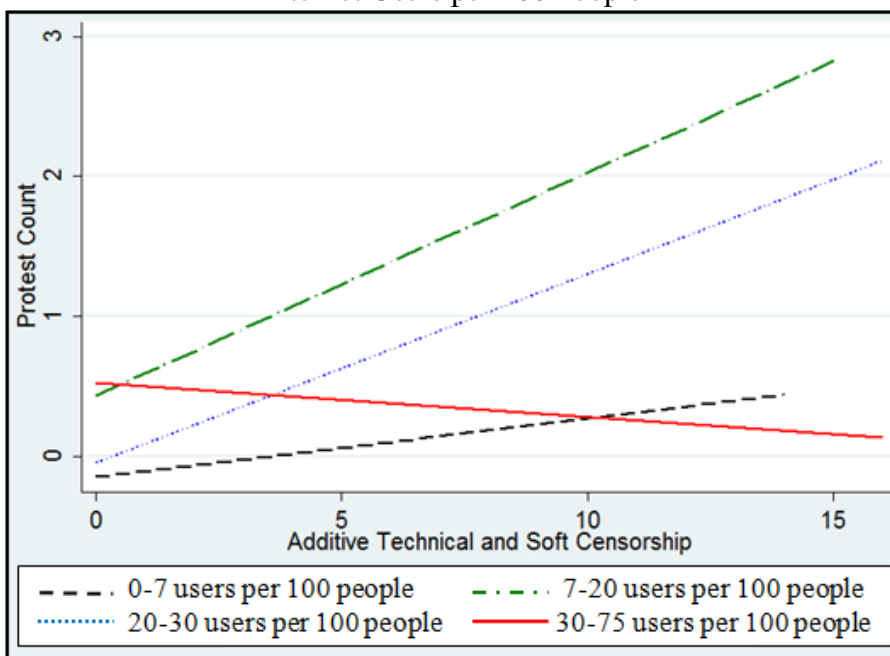
Table 5.1: List of ONI Tested Countries

Country	Oni Test Year	Country	Oni Test Year
Afghanistan	2007	Malaysia	2011
Algeria	2009	Mauritania	2009
Armenia	2008	Mexico	2011
Australia	2009	Moldova	2009
Azerbaijan	2008	Morocco	2009
Bahrain	2009	Nepal	2007
Bangladesh	2011	Nigeria	2009
Belarus	2008	Norway	2009
Myanmar	2011	Oman	2009
Canada	2009	Pakistan	2011
China	2011	Peru	2011
Colombia	2011	Philippines	2009
Croatia	2009	Qatar	2009
Denmark	2009	Romania	2009
Egypt	2011	Russia	2010
Ethiopia	2011	Saudi Arabia	2009
Finland	2009	Singapore	2007
France	2009	South Korea	2011
Gaza/West Bank	2009	Sri Lanka	2009
Georgia	2008	Sudan	2009
Germany	2008	Sweden	2009
Guatemala	2011	Syria	2009
Hungary	2009	Tajikistan	2008
India	2011	Thailand	2011
Indonesia	2011	Tunisia	2011
Iran	2011	Turkey	2010
Iraq	2009	Turkmenistan	2008
Israel	2009	Uganda	2009
Italy	2009	Ukraine	2008
Jordan	2009	United Arab Emirates	2009
Kazakhstan	2009	United Kingdom	2010
Kuwait	2009	United States	2009
Kyrgyzstan	2009	Uzbekistan	2008
Laos	2009	Venezuela	2011
Latvia	2009	Vietnam	2011
Lebanon	2009	Yemen	2009
Libya	2009	Zimbabwe	2008

Source: OpenNet Initiative 2011

Table 5.2: Censorship Pervasiveness by Country, 2009

Country	Political	Social	Security	Tools	Soft
Armenia	3	2	2	2	0
Azerbaijan	2	2	0	0	0
Bahrain	3	2	2	0	0
Belarus	2	2	2	2	1
China	4	3	3	4	1
Ethiopia	3	2	2	2	1
Iran	4	4	4	3	1
Jordan	2	0	0	0	1
Kazakhstan	2	0	0	0	1
Libya	3	0	0	0	1
Morocco	0	0	2	2	1
Myanmar	4	3	3	3	1
Oman	0	4	1	0	1
Pakistan	1	3	2	3	1
Saudi Arabia	3	4	3	2	1
Singapore	0	2	0	0	1
Sudan	0	4	3	0	1
Syria	4	2	3	2	1
Tajikistan	2	0	0	0	1
Thailand	2	3	2	0	1
Tunisia	4	4	4	2	1
Turkmenistan	4	2	2	2	1
UAE	2	4	3	2	1
Uzbekistan	4	2	2	2	1
Vietnam	4	2	3	0	1
Yemen	2	4	3	2	1

Source: OpenNet Initiative, 2011

Note: only lists states scoring at least 1 in a technical censorship category in 2009.

Table 5.3: ONI Tests by Region

Region	*N*
Americas	5
Europe	13
Africa	17
Middle East	74
Asia	53

Table 5.4: H2a, Effect of Technical Internet Censorship
on Protest, Middle East and Asia

	Protest β(se)	Incidence Rate Ratio %
Protest (Lagged)	.006	
	(.120)	
Technical Censorship	.021	
	(.053)	
Internet Users per 100 People	.065	6%
	(.035)	
Political Terror Scale	.379	
	(.382)	
GDP per Capita	-.001**	-.2%
	(.0005)	
GDP Growth	-.052	
	(.091)	
Total School Enrollment	22.90	
	(14.96)	
Total Population, Logged	.945**	157%
	(.380)	
Military Spending % of GDP	-.743**	53%
	(.410)	
Intercept	-19.76	
	(8.29)	
n	81	
Log Alpha	.251	
Alpha	1.28	
Wald Chi-Square	67.01	
Prob > Chi-Square	.00001	
Log Pseudolikelihood	-47.03	

Sources: Correlates of War (Sarkees, et al. 2010), Cross-National Time-Series Data Archive (Banks 2011), Polity IV (Marshall, et al. 2009), Political Terror Scale (Gibney, et al. 2008); World Bank (I4CD 2012).

Notes: the dependent variable *protest* is a count measure of anti-regime demonstrations per year ranging from 0 to 15. Two-tailed tests with robust standard errors calculated by country code clustering.

*p ≤ 0.1, **p ≤ 0.05, ***p ≤ 0.01

Table 5.5: H2b, Effect of Soft Internet Censorship
on Protest, Middle East and Asia

	Protest β(se)	Incidence Rate Ratio %
Protest (Lagged)	-.240**	-21%
	(.075)	
Soft Censorship	-4.45**	-99%
	(2.08)	
Internet Users per 100 People	-.010	
	(.034)	
Political Terror Scale	.847	
	(.572)	
GDP per Capita	-.0001	
	(.0001)	
GDP Growth	-.348***	-30%
	(.099)	
Total School Enrollment	14.55	
	(9.29)	
Total Population, Logged	2.03***	668%
	(.487)	
Military Spending as a % of GDP	-.821**	-56%
	(.381)	
Intercept	-35.58	
	(10.05)	
n	61	
Log Alpha	-.476	
Alpha	.620	
Wald Chi-Square	59.76	
Prob > Chi-Square	.00001	
Log Pseudolikelihood	-43.56	

Sources: Correlates of War (Sarkees, et al. 2010), Cross-National Time-Series Data Archive (Banks 2011), Polity IV (Marshall, et al. 2009), Political Terror Scale (Gibney, et al. 2008); World Bank (I4CD 2012).

Notes: the dependent variable *protest* is a count measure of anti-regime demonstrations per year ranging from 0 to 15. Two-tailed tests with robust standard errors calculated by country code clustering.

*p ≤ 0.1, **p ≤ 0.05, ***p ≤ 0.01

Table 5.6: H2c, Multiplicative Effect of Technical and Soft Censorship on Protest, Middle East and Asia

	Protest β(se)	Incidence Rate Ratio %
Protest (Lagged)	.013	
	(.145)	
Technical*Soft Censorship	-.077	
	(.093)	
Technical Censorship	-.223	
	(.236)	
Soft Censorship	-1.96	
	(1.99)	
Internet Users per 100 People	.113	
	(.091)	
Political Terror Scale	-.184	
	(.658)	
GDP per Capita	-.0004	
	(.0003)	
GDP Growth	-.300**	-26%
	(.103)	
Total School Enrollment	6.40	
	(14.77)	
Total Population, Logged	1.54***	300%
	(.403)	
Military Spending as a % of GDP	-.803	
	(.586)	
Intercept	-22.30	
	(10.90)	
n	30	
Log Alpha	-2.39	
Alpha	.092	
Wald Chi-Square	.	
Prob > Chi-Square	.	
Log Pseudolikelihood	-23.44	

Sources: Correlates of War (Sarkees, et al. 2010), Cross-National Time-Series Data Archive (Banks 2011), Polity IV (Marshall, et al. 2009), Political Terror Scale (Gibney, et al. 2008); World Bank (I4CD 2012).

Notes: the dependent variable *protest* is a count measure of anti-regime demonstrations per year ranging from 0 to 15. Two-tailed tests with robust standard errors calculated by country code clustering.

*$p \leq 0.1$, **$p \leq 0.05$, ***$p \leq 0.01$

Table 5.7: H2c, Additive Effect of Technical and Soft
Censorship on Protest, Middle East and Asia

	Protest β(se)	Incidence Rate Ratio %
Protest (Lagged)	.088	
	(.104)	
Technical+Soft Censorship	.132**	14%
	(.068)	
Internet Users per 100 People	-.037	
	(.035)	
Political Terror Scale	.131	
	(.569)	
GDP per Capita	-.0006***	-.1%
	(.0002)	
GDP Growth	-.303***	-26%
	(.106)	
Total School Enrollment	23.07*	5%
	(12.84)	
Total Population, Logged	1.55 ***	375%
	(.430)	
Military Spending as a % of GDP	-1.32***	-73%
	(.390)	
Intercept	-28.15	
	(8.88)	
n	60	
Log Alpha	-.759	
Alpha	.468	
Wald Chi-Square	100.14	
Prob > Chi-Square	.00001	
Log Pseudolikelihood	-43.68	

Sources: Correlates of War (Sarkees, et al. 2010), Cross-National Time-Series Data Archive (Banks 2011), Polity IV (Marshall, et al. 2009), Political Terror Scale (Gibney, et al. 2008); World Bank (I4CD 2012).

Notes: the dependent variable *protest* is a count measure of anti-regime demonstrations per year ranging from 0 to 15. Two-tailed tests with robust standard errors calculated by country code clustering.

*p ≤ 0.1, **p ≤ 0.05, ***p ≤ 0.01

CHAPTER 6

CONCLUSIONS, IMPLICATIONS AND WAY AHEAD

The findings reinforce my contention that Internet-mediated dissent challenges

authoritarian regimes through three factors: distance, decentralization, and interaction.

First, the Internet allows individuals to communicate almost instantaneously and

relatively cheaply across great distances (although cost remains a factor in some areas).

Not only can individuals keep in contact with close friends and family, but they can also

interact with any likeminded individual using a TCP/IP enabled device. Second,

TCP/IP's decentralized structure helps maintain user anonymity while at the same time

allowing information to flow freely over multiple conduits. However, states such as

China and Myanmar have tried different methods to identify users, with varying degrees

of success. Finally, the "many-to-many" broadcast method fosters interaction by

allowing users to be both consumers and producers of content. Indeed, Perlmutter (2004)

presents the term "interactor" as a descriptive for many-to-many interpersonal

communication in the Internet age.

<u>Review of Findings</u>

Does the Internet facilitate anti-regime dissent within authoritarian states? In this

project I attempted to answer this question through a theory of Internet-mediated dissent.

Empirical analysis of three hypotheses across two chapters suggests mixed support for

my theory. In chapter 4, I hypothesized that anti-regime protests increase as Internet use

increases inside non-democratic states. To test my hypothesis, I designed a cross-

sectional time series analysis spanning from 1999 to 2010 across 88 countries. I

operationalized protest using the CNTS (2011) variable anti-regime demonstrations, and

operationalized my key independent variable Internet access using the World Bank (2012) variable Internet users per 100 people.

Following previous research programs, I controlled for repression (political terror and coercive capacity), economic growth, education, and population size. I used negative binomial regression clustered by country code for robust standard errors and used incidence rate ratios to describe the magnitude of findings. The results of the test supported H1, finding that increased Internet access likewise increased the likelihood of protest in non-democratic states. However, the relationship was not linear: while the likelihood of protest increased substantively between 7 and 30 Internet users per 100 people, my analysis suggests that the likelihood of started to taper off above 30 users per 100 people.

I built onto these results in chapter 5 by examining the effects of Internet censorship on anti-regime protest. I hypothesized that technical censorship (H2a) soft controls (H2b) would decrease the likelihood of protest, and further assessed that combined technical and soft control regimes (H2c) would have a synergistic effect. To operationalize censorship, I used filtering data from the OpenNet Initiative. I otherwise operationalized the same data and employed the same negative binomial model as in chapter 4. Results of the tests were mixed: on one hand, technical censorship neither increased nor decreased the likelihood of protest, while soft controls slightly decreased incidence of protest. To test for synergistic effects, I analyzed a multiplicative and additive model of combined technical and soft censorship. The multiplicative model was not statistically significant, while the additive model was statistically but not substantively significant.

In the same chapter, I also theorized that Internet use would eventually cross a threshold after which censorship was no longer effective (H3). I found partial support for H3 using the additive technical and soft control model, with the results mirroring the curvilinear effect found in Chapter 4. The likelihood of protest increases along with Internet user rates despite controlling for censorship. However, at higher the effect tapered downward above 30 users per 100 people. Overall, then, my series of tests suggest that not only in the Internet an effective mobilizing structure, but also that censorship is not effective at thwarting Internet-mediated dissent.

Additionally, several control variables remained strong protest predictors across both chapters: economic growth and coercive capacity were strong predictors for decreasing protest, while population size predicted increasing protest. These controls may help explain the tapering effect above 30 users per 100 people. On the one hand, increased Internet use may suggest greater economic opportunity and reduced grievance; while on the other hand, increased Internet use may also indicate greater state wealth and thus means to expand coercive capacity. Results of a simple tabulation analysis support both claims, in that non-democratic states with the highest Internet use rates have GDPs above $10,000 annually and also spend more on coercive capacity.

Implications for the Literature

I assess that this project achieved my goal of bringing together traditional contentious politics and Internet-mediated dissent literatures under a unified theoretical umbrella. I also presented the traditional dissent and repression literature chronologically, starting with Olson's (1965) rational choice and ending with McAdam, McCarthy and Zald's (1996) synthetic model that combined features from previous literature. While I framed

my own Internet-mediated dissent model within the synthetic model, Internet mobilization speaks to earlier theories. First, from a rational choice perspective, the Internet helps overcome the collective action problem as a conduit for selective incentives. In particular, online participation increases the sense of self-efficacy and thus propensity to contribute to collective good production. This may further be enhanced by the presence of online entrepreneurs who can motivate group members, and can also be reinforced by group solidarity. Additionally, both the rational choice and resource mobilization theories posit that repression discourages individuals from mobilizing. In turn, the Internet's anonymous and decentralized structure allows individuals to evade repression, although this may be conditioned by Internet censorship efforts.

Through the resource mobilization lens, the Internet increases spatial structure by removing geographic limitations and fostering virtual communities. Blogs, forums, chat rooms and other online gathering places thus foster development of virtual public spheres, particularly in states where physical association is regulated. As for the threshold model, more work remains for unraveling the effects of increased Internet access on mobilization. My findings suggest that Internet mobilization occurs at low Internet use levels, but decrease at higher Internet use levels. Finally, while I assess culture, norms and trust are important facets of Internet mobilization, my model in current form does not fully address culture and trust issues. I discuss this further in the *directions for future research* heading below.

Next, I assess that the weak ties, social presence and spiral of silence concepts from the mass communication literature are usefully for explaining the curvilinear effect of Internet use and protest. Increased Internet use statistically and substantively results in

increased likelihood of protest, which logically suggests that Internet users are establishing trust online and tapping into new or existing social ties to exchange information. In turn, the tapering of protest at higher Internet use levels indicates either better economic opportunity or increased coercive threat. If coercive threat is the causal factor, then fear will drive some users to keep their opinions close-hold so as to avoid punitive action. On a more positive note, the Internet's decentralized nature can also reduce the spiral of silence by allowing users to evade regime censors and communicate freely with likeminded individuals.

As for the Internet functionality and censorship literatures, understanding how the Internet works is imperative for understanding how the Internet functions as a mobilizing structure. At the same time, one cannot simply view Internet communication as a completely unregulated collection of TCP/IP enable systems and data packets that are divorced from political influences. While I find that censorship has little effect on the likelihood of protest, case examples throughout the project still illustrate the lengths to which regimes attempt to control information flows. Overall, this project also highlights the importance of fostering cross-communication between academic disciplines. As discussed previously, approaching this project required knowledge of political science, communication, legal, and computer science literatures. In my assessment, such disciplinary cross-pollination is absolutely necessary for conducting research in the burgeoning field of Internet-mediated politics.

Importance and Policy Implications

Why is studying Internet-mediated dissent important to political science and policymakers? While some technological theorist remain cautious at evangelizing the

Internet as the ultimate mobilizing tool (Morozov 2011), others contend that Internet access has the capacity to overwhelm state coercion (Howard 2010). Consider events in the Middle East since 2009. The Iranian presidential elections of 2009 depicted the first "Twitter Revolution," with dissenters fully embracing Internet technologies to plan, organize and execute events. Information spread beyond the Iranian firewall and attracted international audiences. What was particularly provocative from a policy standpoint during the Iranian protests was the State Department calling the CEO of Twitter directly to ask that the company postpone going offline for system maintenance so that the Twitter service remained available to the Iranian protest movement (Howard 2010). In short, a government directly appealed to a private corporation to ensure that the corporation's service remained available in order to subvert an opposing government.

But while the Iranian regime successfully quelled the protest, the regimes of Tunisia, Egypt, Yemen, and Libya were not so fortunate. As in Iran, protesters in each state embraced the Internet as a mobilizing structure. But in each case the movements succeeded in removing the respective regimes from power. This is not to say that Internet access was the only causal factor. However, the use of Google Maps to plot troop movements rivals sophisticated order of battle tracking employed by professional militaries. In the early 1990's, this kind of reporting was highly classified and collected with specialized equipment: fast forward to 2011, and intelligence previously available to professionals is now freely available on the Internet. From a policy standpoint, the implications of this type of public collection and reporting are extraordinary.

My illustrative examples, however, indicate that states are willing to impose Internet restrictions in order to restrict political opportunity, with violent results in some cases.

Even successes such as Egypt's Internet-mediated movement have been tempered by bloodshed: the protests erupted on 25 January, and by 29 January 100 people had been killed and 2,000 wounded (Death… 2011). The potential for bloodshed is an apt segue into policy ramifications. As Bimber (1998), Myers (2000) and Garrett (2006) suggest, the Internet accelerates and intensifies the social mobilization and state response cycle. The Arab Spring's rapid diffusion across the Middle East illustrates this, as does China's quick imposition of related keyword blocks to prevent similar protest outbreaks.

On the one hand, the Internet is an inexpensive alternative for engaging with and supporting dissent movements: asking Twitter to keep their servers running had fewer foreign policy costs than intervening in Iran directly. Indeed, as the Internet supplanted the newspaper, radio and television previously as a mobilization tools, Internet engagement fills the same role as the radio-based Voice of America, but with far more interactivity. But on the other hand, Internet engagement is a double-edged sword, with the risk of Internet engagement rapidly transitioning to armed confrontation.

Internet mobilization was a common thread throughout the Arab Spring revolts, symbolically culminating in Time Magazine naming "The Protester" as the 2011 person of the year (Dec 26, 2011 issue). The artist's rendition of the young, anonymous, and face-scarved dissident capped a year that spoke to the end of authoritarianism at the hands of new social movements. Yet, what started with a single man immolating himself in Tunisia in protest has also since metastasized into not only three fallen regimes, but also thousands dead, thousands more wounded, and U.S. military involvement in Libya through the auspices of NATO. Indeed, shortly after the *25 January* protests erupted in Egypt, China moved swiftly to block the word "Egypt" across the country's network in

order to prevent similar unrest (Page 2011). The policy risk, then, is that Internet engagement can quickly spiral from a cheap, hands-off alternative to physical involvement and to states outside the target area.

<div align="center">Nuances and Complications</div>

Based on my review of the literature, I assess the project was among the first to attempt to quantitatively measure the effects of Internet use and censorship on anti-regime dissent. Given that the Internet literature consists largely of qualitative case studies, it was a challenge designing a series of quantitative tests that built on traditional dissent and coercion theories but also incorporated new ideas regarding Internet-mediated dissent. Overall, I am confident in the validity and reliability of my data, methods and findings. But, I had to grapple with two significant data issues over the duration of this project: measuring dissent and measuring Internet use. I hope these will help the reader generate additional questions and research design ideas.

First, how does one measure protest? Previous studies have used protest event data from Minorities at Risk (Norton and Regan 2005) and the Cross-National Time-Series archive (Meier 2007; Allen 2008), the latter which I used in this project. I originally presented my empirical chapters as conference papers, but used Minorities at Risk (MAR) protest data in the earlier iterations. However, MAR presented three significant limitations. First, the most recent MAR update cuts off at 2006. Given the rapid global increase of Internet use over the last decade, a 6-year gap in protest coverage makes it difficult to align with up-to-date Internet use data. Second, the coding scheme changes between 2003 and 2004, making the data unreliable for time series analysis. Third, the data are predicated on ethnic conflict, meaning I lost states in which ethnic conflict was

not a factor in anti-regime protest. While CNTS offered greater data breadth across time and space (Allen 2008), CNTS also presents two concerns. First, CNTS codes protest events based on newspaper reports. Events go unreported, however, in highly coercive states, but over reported in less coercive states. Second, Nam (2006) argues that protest events suffer from coding inconsistencies and often do not fully capture event magnitude.

Next, what are some other Internet use measurements that also may prove theoretically rich? The World Bank and CNTS offered a wealth of ICT data, including available computers, broadband subscriptions, and cell phone use. I assessed that simple Internet access would prove the most fruitful since data were broadly available across countries and years. Indeed, I appreciate that World Bank not only updates current data, but also continuously improves previous year data as new information becomes available. For example, as of the Fall of 2009, World Bank Internet access data were generally unavailable prior to 2003. As of this writing, however, World Bank now has Internet use data for most counties to 1995, with some data reaching as far back as 1981. But, Chadwick (2006) Mossberger, et al. (2008) and West (2011) have posited that dial-up access speeds are not sufficient for digital citizenship, since only broadband has the capacity to support modern Web 2.0 applications. In contrast, Meier (2007) assesses that cell phone use is a good measure for ICT-mediated dissent, given their ubiquity and inexpensiveness. Simply measuring access also overlooks how information access and content creation influences social movements (Perlmutter 2004; Mossberger, et al. 2008; Zha and Perlmutter 2009). In short, available data present numerous opportunities for measuring the influences of the Internet and other modern communication mediums.

Directions for Future Research

I originally envisioned three empirical chapters: access, censorship and political use of

the Internet. As discussed in the literature review, some scholars contend that the

likelihood of dissent is conditioned by cultural and societal influences, particularly social

capital, social ties and trust. Returning to my model of Internet-mediated dissent, I

theorized that cultural framing processes (4) influence political use of the Internet, by

which I mean purposeful use of the Internet to gather political information, participating

in online political forums and using the Internet as a protest mobilization and

coordination tool (e.g. Mossberger, et al. 2008).   Had I pursued this avenue, the full

model would have appeared as illustrated in Figure 6.1.

Users turn to the Internet for a variety of purposes: personal bank, communicating

with family members, playing games, and so on. To that end, some communication

theorists argue that the majority of Internet traffic is not political in nature but rather

composed of interpersonal communication and entertainment. To paraphrase Morozov

(2011), more state Internet bandwidth is likely consumed by amusing photos of cats

flushing toilets than dissenters viewing the Internet as an opportunity structure. In

contrast, Castells (1997) argues that ICTs are fundamental for social movements to exist,

provide organizational infrastructure, and are, "…the actual producers, and distributors,

of cultural codes (pp. 362)." Howard (2010) also argues that the Internet shifts from

being an information and entertainment medium to a mobilization medium during

political crises. Internet Interaction may also influence bridging and bonding social

capital, and the spatial structure of a state's public sphere (Margolis and Resnick 2000;

Dahlgren 2005; Lin 2006).

The quality of group membership may also matter over quantity of overall users, as mobilization entrepreneurs within one group may be more effective as information brokers between groups (Kulikova and Perlmutter 2007). Internet-mediated social movements may also be influenced by diasporas outside the state acting as brokers to mobilizing groups inside the state. Kulikova and Perlmutter (2007) found that many *www.akaevu.net* readers and commenters originated from outside Kyrgyzstan. Additionally, during the 2009 Iranian protests, protesters tapped contacts with family and friends overseas as sources of locally censored information (Howard 2010).

But, the literature offers contradicting findings on trust. For example, qualitative evidence suggests that cultural differences influences political Internet use. To reiterate, Kuwaitis rarely discuss politics with individuals they do not know, while Egypt has a long history of "coffee house culture" in which politics are discussed freely (Wheeler 2006). However, quantitative literature ranks Egypt as a traditional/survival culture on Inglehart and Welzel's (2010) materialist/postmaterialist value map (see Figure 2.1), suggesting that Egyptians are less likely to use the Internet politically. This presents an interesting theoretical conundrum, which I hope to examine in a follow-on project.

Next, how can regimes use the Internet to their own advantage? The literature presents Internet filtering as the primary threat to anti-regime mobilization, but information manipulation is an overlooked elephant in the room. To wit, Lohmann (1992, 1994) finds that states can reduce mobilization opportunity by manipulating available information. These findings were generated well before Internet ubiquity; however, more recently Kulikova and Perlmutter (2007) and Howard (2010) argue that regimes use the Internet as a tool for information dissemination. That is, to set and

dominate the agenda while undercutting the movement's mission statement. Similarly, Garrett (2006) argues that not only is there a risk that movements will falter under well-oiled regime communication machines, but also that Internet users will fall easily to false information. Such information can be planted by the regime, or it can be simple rumors that users fail to scrutinize before acting. What makes this aspect particularly dangerous is the speed at which information travels and users react. In short, how can me measure the efficacy of regime-driven information campaigns, or how dissidents process and act on online information?

Finally, this paper does not address whether or not movements succeed or fail. Yet, results of the control variables suggest that certain state characteristics can either mitigate anti-regime grievances (e.g. economic opportunity), or doom movements from the start (coercive capacity). As my collection of case examples indicate, Internet-mediated social movements are not guaranteed success. Although
 this project predicts that Internet access increases the likelihood of protest, examining Internet-mediated dissent ex post facto may prove a rich empirical vein. While I hope this project is a start, it is by no means the final word on Internet-mediated dissent. Indeed, I assess a major implication for political science is the need to engage with other disciplines in order to properly approach this topic, as the answers likely do not reside solely in one field.

Figure 6.1: A Theory of Internet-Mediated Dissent (with Framing)
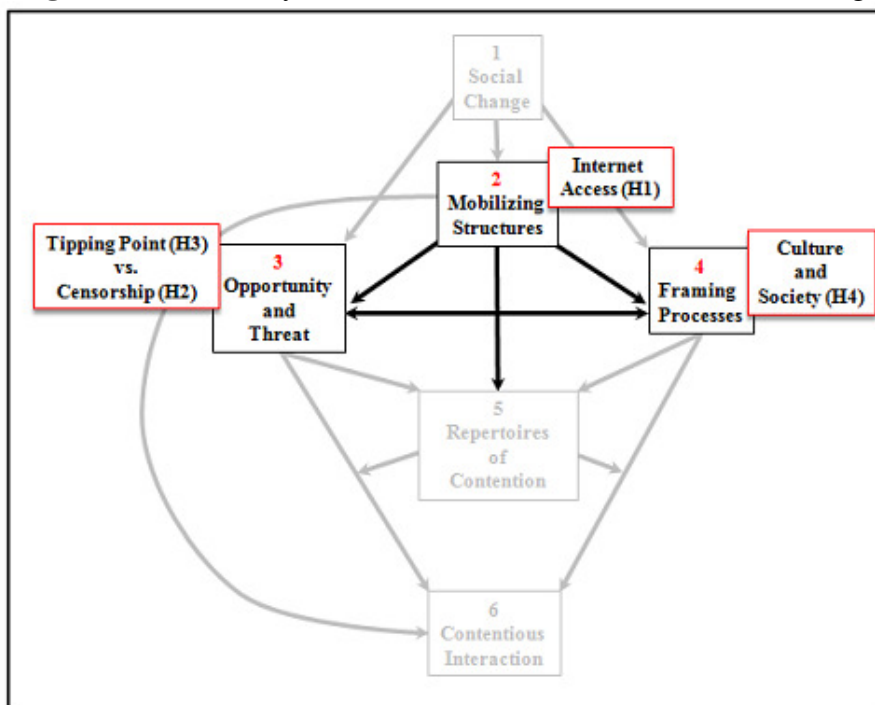
REFERENCES

Editorial: Iran's Twitter Revolution." *Washington Times*, 16 June 2009.

(I4CD), Information and Communications for Development. "World Bank Data Query." edited by World Bank Group. Washington, D.C., 2011.

(WVS), World Values Survey. "Values Change the World." edited by World Values Survey Association. Stockholm: World Values Survey Association, n.d.

Abbate, Janet. *Inventing the Internet.* Cambridge, MA: MIT Press, 1999.

Anderson, Nate. "Tweeting Tyrants out of Tunisia: Global Internet at Its Best." *Wired* (January 14, 2011). Available at http://www.wired.com/threatlevel/2011/01/tunisia/ (accessed 7 April 2012).

Antoun, Naira. "The Battle for Public Space: Squares and Streets of the Egyptian Revolution." Ahram Online, http://english.ahram.org.eg/NewsContent/1/114/32336/Egypt/-January-Revolution-continues/The-battle-for-public-space-Squares-and-streets-of.aspx (accessed 26 January 2012).

Aditjondro, George, David Kowalewski, and Steven Peterson. "Protest Targeting and Repression: Campaigns against Water Projects in Indonesia." In *Paths to State Repression*, edited by Christian Davenport, 109-26. New York: Rowan and Littlefield, 2000.

Almond, Gabriel A. "The Intellectual History of the Civic Culture Concept." In *The Civic Culture Revisited*, edited by Gabriel A. Almond and Sidney Verba, 1-33. Boston: Little, Brown and Co., 1980.

Almond Gabriel, and Sidney Verba. *The Civic Culture: Political Attitudes and Democracy in Five Nations*. Princeton: Princeton University Press, 1963.

Aminzade, Ronald R., Jack A. Goldstone, Doug McAdam, Elizabeth Perry, William H. Sewell Jr., Sidney Tarrow, and Charles Tilly. *Silence and Voice in the Study of Contentious Politics*. Cambridge: Cambridge University Press, 2001.

Banks, Arthur S. "Cross-National Time-Series Data Archive." Jerusalem, Israel: Databanks International, 2011.

Bargh, John, Katelyn McKenna, and Grainne Fitzsimons. "Can You See the Real Me? Activation and Expression of the "True Self" on the Internet." *Journal of Social Issues* 58, no. 1 (2002): 33-48.

Barnard, Anne, and Rick Gladstone. "Steps up Drive against Insurgents, Invading Enclaves in Northern City." *The New York Times*, March 14 2012, A15.

Barron, David N. "The Analysis of Count Data: Overdispersion and Autocorrelation." In *Sociological Methodology, Vol. 22*, edited by Peter V. Marsden. New York: Blackwell, 1992.

Benford, Robert D., and David A. Snow. "Framing Processes and Social Movements: An Overview and Assessment." *Annual Review of Sociology* 26 (2000): 611-39.

Bennett, W. Lance. "Communicating Global Activism: Strengths and Vulnerabilities of Networked Politics." *Information, Communication and Society* 6, no. 2 (2003): 143-68.

Best, Michael, and Keegan W. Wade. "The Internet and Democracy: Global Catalyst or Democratic Dud?". Cambridge, MA: Berkman Center for Internet and Society Research, Harvard University, 2002.

Bimber, Bruce. "The Internet and Political Transformation: Populism, Community, and Accelerated Pluralism." *Polity* 31, no. 1 (1998): 133-60.

Boas, Taylor C. "Weaving the Authoritarian Web: The Control of Internet Use in Nondemocratic Regimes." In *How Revolutionary Was the Digital Revolution? National Responses, Market Transitions, and Global Technology*, edited by John Zysman and Abraham Newman, 361-78. Stanford, CA: Stanford University Press, 2006.

Brambor, Thomas, William Roberts Clark, and Matt Golder. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 13 (2005): 1-20.

Braumoeller, Bear F. "Hypothesis Testing and Multiplicative Interaction Terms." *International Organization* 58, no. 4 (2004): 807-20.

Brown, Mark. "Google Maps Mashup Documents Libyan Protests." In *Epicenter*: Wired Magazine, 2011.

Brunsting, Suzanne, and Tom Postmes. "Social Movement Participation in the Digital Age: Predicting Offline and Online Collective Action." *Small Group Research* 33, no. 5 (2002): 525-54.

Bucy, Erik P. and Kimberly S. Gregson. "Media Participation: A Legitimizing Mechanism of Mass Democracy." *New Media and Society* 3, no. 3 (2001): 357-80.

"Burma Monks Issue Defiant Message." *BBC News* (September 21, 2007). Available at http://news.bbc.co.uk/2/hi/asia-pacific/7005974.stm (accessed 29 March 2012).

Carey, Sabine C. "The Dynamic Relationship between Protest and Repression." *Political Research Quarterly* 59, no. 1 (2006): 1-11.

Castells, Manuel. *The Information Age: Economy, Society and Culture: Vol II. The Power of Identity*. Malden, MA: Blackwell, 1997.

Castells, Manuel. *The Power of Identity: The Information Age: Economy, Society and Culture, Volume Ii*. Malden, MA: Wiley-Blackwell, 2004.

Chadwick, Andrew. *Internet Politics: Sates, Citizens, and New Communications Technologies*. Oxford: Oxford University Press, 2006.

Chong, Dennis. *Collective Action and the Civil Rights Movement*. Chicago: University of Chicago Press, 1991.

Clapp, Priscilla. "Burma's Long Road to Democracy." Washington, D.C.: United States Institute of Peace, 2007.

Coleman, James S. *Foundation of Social Theory*. Cambridge, MA: Belknap Press, 1990.

Converse, Philip E. "Perspectives on Mass Belief Systems and Communication." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 144-58. Oxford: Oxford University Press, 2007.

Coyle, Dennis. "A Cultural Theory of Organizations." In *Culture Matters: Essays in Honor of Aaron Wildavsky*, edited by Richard J. Ellis and Michael Thompson Aaron B. Wildavsky, 59-78. Boulder, CO: Westview Press, 1997.

Crandall, Jedidiah R., Daniel Zinn, Michael Bird, Earl Barr, and Rich East. "Conceptdoppler: A Weather Tracker for Internet Censorship." In *14th ACM Conference on Computer and Communications Security*. Alexandria, VA, 2007.

Cuzán, Alfred G. "Resource Mobilization and Political Opportunity in the Nicaraguan Revolution: The Praxis." *The American Journal of Economics and Sociology* 50, no. 1 (1991): 71-83.

Dahl, Robert A. *Democracy and Its Critics*. New Haven, CT: Yale University Press, 1989.

Dahlgren, Peter. "The Internet, Public Spheres, and Political Communication: Dispersion and Deliberation." *Political Communication* 22, no. 2 (2005): 147-62.

Dalton, Russell J., and Alix van Sickle. "The Resource, Structural, and Cultural Bases of Protest." Working paper, UC Irvine: Center for the Study of Democracy (2005).

Dalton, Russell, and Hans-Dieter Klingemann. "Citizens and Political Behavior." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 3-26. Oxford: Oxford University Press, 2007.

Danitz, Tiffany and Warren Strobel. "The Internet's Impact on Activism: The Case of Burma." Washington, D.C.: Virtual Diplomacy Series, U.S. Institute of Peace, 1999.

Dartnell, Michael. "Weapons of Mass Instruction: Web Activism and the Transformation of Global Security." *Millennium-Journal of International Studies* 32, no. 3 (2003): 477-99.

Davenport, Christian. "The Weight of the Past: Exploring Lagged Determinants of Political Repression." *Political Research Quarterly* 49, no. 2 (1996): 377-403.

Davenport, Christian. *Paths to State Repression: Human Rights Violations and Contentious Politics*. New York: Rowan and Littlefield, 2000.

Davenport, Christian. "The Devil Is in the Details: Media Attentiveness, Conflict Cycles and the Unexplored Micro-Foundations of Event Data." Paper presented at the Repression and Mobilization: What Do We Know and Where Do We Go from Here, University of Maryland - College Park, MD, 21-24 June, 2001.

Davenport, Christian. "Introduction." In *Repression and Mobilization*, edited by Hank Johnston and Carol Mueller Christian Davenport, vii-xli. Minneapolis, MN: University of Minnesota Press, 2005.

Davenport, Christian, David A. Armstrong, and Mark I. Lichbach. "From Mountains to Movements: Dissent, Repression, and Escalation to Civil War." Paper presented at the International Studies Association, San Diego, CA, 2006.

de Swann, Abram. "Terror as a Government Service." In *Repression and Repressive Violence*, edited by Marjo Hoefnagels, 40-50. Amsterdam: Swets and Zeitlinger, 1977.

"Death Toll in Egypt's Protests Tops 100 - Sources." (January 29, 2011). Available at http://af.reuters.com/article/egyptNews/idAFLDE70S0LX20110129 (accessed 5 April 2012).

Deibert, Ronald. "Black Code: Censorship, Surveillance, and the Militarisation of Cyberspace." *Millennium - Journal of International Studies* 32, no. 3 (2003): 501-30.

Deibert, Ronald, and Rafal Rohozinski. "Liberation Vs. Control in Cyberspace." *Journal of Democracy* 21, no. 4 (2010): 43-57.

Deibert, Ronald J., John G. Palfrey, Rafal Rohozinski, and Jonathan Zittrain. *Access Controlled: The Shaping of Power, Rights and Rule in Cyberspace*. Cambridge, MA: MIT Press, 2010.

Deibert, Ronald J., John G. Palfrey, Rafal Rohozinski, and Jonathan Zittrain. *Access Denied: The Practice and Policy of Global Internet Filtering*. Cambridge, MA: MIT Press, 2008.

Deibert, Ronald J., and Rafal Rhozinski. "Beyond Denial: Introducing Next-Generation Internet Access Controls." In *Access Controlled: The Shaping of Power, Rights and Rule in Cyberspace*, edited by John G. Palfrey Ronald J. Deibert, Rafal Rohozinski, and Jonathan Zittrain, 3-14. Cambridge, MA: MIT Press, 2010a.

Deibert, Ronald J., and Rafal Rhozinski. "Control and Subversion in Russian Cyberspace." In *Access Controlled: The Shaping of Power, Rights and Rule in Cyberspace*, edited by John G. Palfrey Ronald J. Deibert, Rafal Rohozinski, and Jonathan Zittrain. Cambridge, MA: MIT Press, 2010b.

Diani, Mario. "Networks and Social Movements: A Research Programme." In *Social Movements and Networks: Relational Approaches to Collective Action*, edited by Mario Diani and Douglas McAdam, 299-319. Oxford: Oxford University Press, 2003.

Earl, Jennifer, Sarah Soule, and John McCarthy. "Protest under Fire? Explaining the Policing of Protest." *American Sociological Review* 68, no. 4 (2003): 581-606.

Easton, David. "A Reassessment of the Concept of Political Support." *British Journal of Political Science* 5 (1975): 435-57.

Eisinger, Peter K. "The Conditions of Protest in American Cities." *American Political Science Review* 67, no. 1 (1973): 11-28.

Elkins, David J. and Richard E.B. Simeon. "A Cause in Search of Its Effects, or What Does Political Culture Explain?" *Comparative Politics* 11, no. 2 (1979): 127-46.

el-Naggar, Mona. "Equal Rights Takes to the Barricades." *The New York Times* (February 1, 2011). Available at http://www.nytimes.com/2011/02/02/world/middleeast/02iht-letter02.html (accessed 25 March 2012).

"Enemies of the Internet: Countries under Surveillance." Paris, France: Reporters Sans Frontières (RSF), 2010. Available at http://en.rsf.org/web-2-0-versus-control-2-0-18-03-2010,36697 (accessed 27 March 2012).

Ess, Charles. *Culture, Technology, Communication: Towards and Intercultural Global Village*. Albany: State University of New York Press, 2001.

Fahim, Kareem. "Slap to a Man's Pride Set Off Tumult in Tunisia." *The New York Times*, 21 January 2011.

Faris, Robert, and Nart Villeneuve. "Measuring Global Internet Filtering." In *Access Denied: The Practice and Policy of Global Internet Filtering*, edited by John G. Palfrey Ronald J. Deibert, Rafal Rohozinski, and Jonathan Zittrain, 5-28. Cambridge, MA: MIT Press, 2008.

Ferrara, Federico. "Why Regimes Create Disorder: Hobbes's Dilemma During a Rangoon Summer." *Journal of Conflict Resolution* 47, no. 3 (2003): 302-25.

Fireman, Bruce, and William A. Gamson. "Utilitarian Logic in the Resource Mobilization Perspective." In *The Dynamics of Social Movements: Resource Mobilization, Social Control and Tactics* edited by Mayer N. Zald and John D. McCarthy, 8-44. Cambridge, MA: Winthrop Publishers, Inc. , 1979.

Foley, Michael W., and Bob Edwards. "The Paradox of Civil Society." *Journal of Democracy* 7, no. 3 (1996): 38-52.

Forouzan, Behrouz. *TCP/IP Protocol Suite*. 4th ed. New York: Mcgraw-Hill 2009.

Francisco, Ronald A. "The Dictator's Dilemma." In *Conference on Repression and Mobilization: What Do We Know and Where Do We Go from Here?* College Park, MD: University of Maryland, 2001.

Francisco, Ronald A. "The Relationship between Coercion and Protest: An Empirical Evaluation in Three Coercive States." *The Journal of Conflict Resolution* 39, no. 2 (1995): 263-82.

Francisco, Ronald A. "Why Are Collective Conflicts "Stable"?" In *Paths to State Repression: Human Rights Violations and Contentious Politics*, edited by Christian Davenport, 149-72. New York: Rowan and Littlefield, 2000.

Froomkin, A. Michael. "Habermas@Discourse.Net: Toward a Critical Theory of Cyberspace." *Harvard Law Review* 116, no. 3 (2003): 749-873.

Fuchs, Dieter. "The Political Culture Paradigm." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 161-84. Oxford: Oxford University Press, 2007.

Fukuyama, Francis. *Trust: The Social Virtues and the Creation of Prosperity*. New York: Free Press, 1995.

Fukuyama, Francis. "Social Capital, Civil Society and Development." *Third World Quarterly* 22, no. 1 (2001): 7-20.

Gamson, William A. "The Social Psychology of Collective Action." In *Frontiers in Social Movement Theory*, edited by Aldon Morris and Carol McClurg Mueller, 53-76. New Haven: Yale University Press, 1992.

Gamson, William A. "Constructing Social Protest." In *Social Movements and Culture*, edited by Hank Johnston and Bert Klandermans, 85-106. Minneapolis: University of Minnesota Press, 1995.

Garrett, R. Kelly. "Protest in and Information Society: A Review of Literature on Social Movements and New ICTs." *Information, Communication & Society* 9, no. 2 (2006): 202-24.

Gartner, Scott Sigmund and Patrick Regan. "Threat and Repression: The Non-Linear Relationship between Government and Opposition Violence." *Journal of Peace Research* 33, no. 3 (1996): 273-87.

Gibney, Mark, L., Linda Cornett, and Reed Wood. "Political Terror Scale 1976-2008." edited by http://www.politicalterrorscale.org/, 2008.

Gibney, Mark, L., Vanessa Dalton, and Mark Vockell. "USA Refugee Policy: A Human Rights Analysis Update." *Journal of Refugee Studies* 5, no. 33 (1992): 46.

Giddens, Anthony. *The Constitution of Society*. Berkeley: University of California Press, 1984.

Goldsmith, Jack, and Tim Wu. *Who Controls the Internet? Illusions of a Borderless World*. New York: Oxford University Press, 2008.

Goldstone, Jack A. "Is Revolution Individually Rational? Groups and Individuals in Revolutionary Collective Action." *Rationality and Society* 6, no. 1 (1994): 139-66.

Gooch, Liz, and J. David Goodman. "Malaysia: Saudi Man to Be Repatriated." *The New York Times*, February 11, 2012, A8.

Goodwin, Jeff, James M. Jasper, and Jaswinder Khattra. "Caught in a Winding, Snarling Vine: The Structural Bias of Political Process Theory." *Sociological Forum* 14, no. 1 (1999): 27-54.

Gouda, Mohamed G., and Xiang-Yang Alex Liu. "Firewall Design: Consistency, Completeness, and Compactness." Paper presented at the 24th International Conference on Distributed Computing Systems, Tokyo, Japan, 23-26 March, 2004.

Granovetter, Mark S. "The Strength of Weak Ties." *American Journal of Sociology* 78, no. 6 (1973): 1360-80.

Groshek, Jacob. "The Democratic Effects of the Internet, 1994-2003: A Cross National Inquiry of 152 Countries." *International Communication Gazette* 71, no. 3 (2009): 115-36.

Grossman, Levi. "Iran Protests: Twitter, the Medium of the Movement." *Time*, 17 June 2009.

Gupta, Dipak K., Harinder Singh, and Tom Sprague. "Government Coercion of Dissidents: Deterrence or Provocation?" *Journal of Conflict Resolution* 37, no. 2 (1993): 301-39.

Gurr, Ted Robert "Persisting Patterns of Repression and Rebellion: Foundations for a General Theory of Political Coercion." In *Persistent Patterns and Emergent Structures in a Waning Century*, edited by M. Karns, 149-68. New York: Praeger, 1986.

Gurr, Ted Robert. "Psychological Factors in Civil Violence." *World Politics* 20 (1968): 245-78.

Gurr, Ted Robert. *Why Men Rebel*. Princeton: Princeton University Press., 1970.

Habermas, Jurgen. *The Structural Transformation of the Public Sphere*. Boston: MIT Press, 1989.

Habermas, Jurgen. *Moral Consciousness and Communicative Action*. Cambridge, MA: MIT Press, 1990.

Hanson, Elizabeth C. *The Information Revolution and World Politics*. Lanham, MD: Rowman & Littlefield Publishers, Inc., 2008.

Hardin, Russell *Collective Action*. Baltimore, MD: Johns Hopkins University Press, 1982.

Hardin, Russell. *One for All: The Logic of Group Conflict*. Princeton: Princeton University Press, 1995.

Hayes, Andrew F. "Exploring the Forms of Self-Censorship: On the Spiral of Silence and the Use of Opinion Expression Avoidance Strategies." *Journal of Communication* 57, no. 4 (2007): 785-802.

Hill, Stuart, and Donald Rothschild. "The Impact of Regime on the Diffusion of Political Conflict." In *The Internationalization of Communal Strife*, edited by Manus Midlasrsky, 189-206. London: Routledge, 1992.

Hibbs, Douglas. *Mass Political Violence*. New York: Wiley, 1973.

Hoover, Dean, and David Kowalewski. "Dynamic Models of Dissent and Repression." *Journal of Conflict Resolution* 36, no. 1 (1992): 150-82.

Hocke, Peter. "Determining the Selection Bias in Local and National Newspaper Reports on Protest Events." In *Acts of Dissent: New Developments in the Study of Protest*, edited by Ruud Koopmans and Friedhelm Niedhardt Dieter Rucht, 131-63. Berlin: Edition Sigma Rainer Bohn Verlag, 1998.

Howard, Philip N. *The Digital Origins of Dictatorship and Democracy*. New York: Oxford University Press, 2010.

Howard, Philip N., Sheetal D. Agarwal, and Muzammil M. Hussain. "When Do States Disconnect Their Digital Networks? Regime Responses to the Political Uses of Social Media." *The Communication Review* 14, no. 3 (2011): 216-32.

Huckfeldt, Robert. "Information, Persuasion, and Political Communication Networks." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 100-22. Oxford: Oxford University Press, 2007.

Inglehart, Ronald. *The Silent Revolution*. Princeton: Princeton University Press, 1977.

Inglehart, Ronald. "The Renaissance of Political Culture." *The American Political Science Review* 82, no. 4 (1988): 1203-30.

Inglehart, Ronald. *Culture Shift*. Princeton, NJ: Princeton University Press, 1990.

Inglehart, Ronald. *Modernization and Post-Modernization: Cultural, Economic and Political Change in 43 Societies*. Princeton: Princeton University Press, 1997.

Inglehart, Ronald. "Postmaterialist Values and the Shift from Survival to Self-Expression Values." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 223-39. Oxford: Oxford University Press, 2007.

Inglehart, Ronald, and Christian Welzel. "Political Culture and Democracy: Analyzing Cross-Level Linkages." *Comparative Politics* 36, no. 1 (2003): 61-79.

Inglehart, Ronald, and Christian Welzel. "Development and Democracy: What We Know About Modernization Today." *Foreign Affairs* March/April (2009): 33-41.

Inglehart, Ronald, and Christian Welzel. "Changing Mass Priorities: The Link between Modernization and Democracy." *Perspectives on Politics* 8, no. 02 (2010): 551-67.

Inkeles, Alex, and David H. Smith. *Becoming Modern: Individual Change in Six Developing Countries*. Cambridge, MA: Harvard University Press, 1974.

International Telecommunications Union (ITU). "Measuring the Information Society." Geneva, Switzerland: International Telecommunications Union 2011.

Jenkins, J. Craig, and Michael Wallace. "The Generalized Action Potential of Protest Movements: The New Class, Social Trends, and Political Exclusion Explanations." *Sociological Forum* 11, no. 2 (1996): 183-207.

Jensen, Michael, James Danziger, and Alladi Venkatesh. "Electronic Democracy in America: Civil Society, Cyber Society and Participation in Local Politics." Irvine, CA: Center for Research on Information Technology and Organizations, University of California, 2005.

Johnston, Hank, and Bert Klandermans. "The Cultural Analysis of Social Movements." In *Social Movements and Culture*, edited by Hank Johnston and Bert Klandermans, 3-25. Minneapolis: University of Minnesota Press, 1995.

Johnston, Hank. "Taking the Walk: Speech Acts and Resistance in Authoritarian Regimes." In *Repression and Mobilization*, edited by Hank Johnston and Carol Mueller Christian Davenport, 108-37. Minneapolis, MN: University of Minnesota Press, 2005.

Kaase, Max. "Perspectives on Political Participation." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann. Oxford: Oxford University Press, 2007.

Kalathil, Shanthi. "Dot.Com for Dictators." *Foreign Policy* 135 (2003): 42-49.

Kalathil, Shanthi and Taylor C. Boas. *Open Networks, Closed Regimes: The Impact of the Internet on Government Rule*. Washington, D.C.: The Carnegie Endowment for International Peace, 2003.

Kamalipour, Yahya R. *Media, Power, and Politics in the Digital Age: The 2009 Presidential Election Uprising in Iran*. Lanham, MD: Rowman & Littlefield Publishers, 2010.

Karatnycky, Adrian, and Peter Ackerman. "How Freedom Is Won: From Civic Resistance to Durable Democracy." Washington, D.C.: Freedom House, 2005.

Karklins, R., and R. Petersen. "Decision Calculus of Protesters and Regimes: Eastern Europe 1989." *Journal of Politics* 55, no. 3 (1993): 588-614.

Karklins, Rasma, and Roger Petersen. "Decision Calculus of Protesters and Regimes: Eastern Europe 1989." *Journal of Politics* 55, no. 3 (1993): 588-614.

Kassner, Michael. "Deep Packet Inspection: What You Should Know." *ZD Net* (2008). Available at http://www.zdnet.co.uk/news/it-strategy/2008/07/31/deep-packet-inspection-what-you-should-know-39454822/ (accessed 24 April 2012).

Kedzie, Christopher R. "Communication and Democracy: Coincident Revolutions and the Emergent Dictator's Dilemma." Santa Monica, CA: RAND, 1997.

Kellner, Douglas. "Globalization from Below? Toward a Radical Democratic Technopolitics." *Angelaki: Journal of the Theoretical Humanities* 4, no. 2 (1999): 101-12.

Khawaja, Marwan. "Repression and Popular Collective Action: Evidence from the West Bank." *Sociological Forum* 8, no. 1 (1993): 47-71.

King, Gary. "Statistical Models for Political Science Event Counts: Bias in Conventional Procedures and Evidence for the Exponential Poisson Regression Model." *American Journal of Political Science* 32, no. 3 (1988): 838-62.

King, Gary. *Unifying Political Methodology: The Likelihood Theory of Statistical Inference*. New York: Cambridge University Press, 1989a.

King, Gary. "Variance Specification in Event Count Models: From Restrictive Assumptions to a Generalized Estimator." *American Journal of Political Science* 33, no. 3 (1989b): 762-84.

Kitschelt, Herbert P. "Political Opportunity Structures and Political Protest: Anti-Nuclear Movements in Four Democracies." *British Journal of Political Science* 16, no. 1 (1986): 57-85.

Knickmeyer, Ellen. "Saudi Youth Fear Crackdown after Friend's Arrest." *The Wall Street Journal*, April 7, 2012, A7.

Knoke, David. *Political Networks: The Structural Perspective*. Cambridge: Cambridge University Press, 1993.

Knoke, David and Nancy Wisely. "Social Movements." In *Political Networks: The Structural Perspective*, edited by David Knocke, 57-84. Cambridge: Cambridge University Press, 1993.

Koopmans, Ruud. "Perspectives on Political Participation." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 693-707. Oxford: Oxford University Press, 2007.

Krishnamurthy, Balachander, Phillipa Gill and Martin Arlitt. "A Few Chirps About Twitter." In *WOSN'08*. Seattle, Washington, 2008.

Kulikova, Svetlana V., and David D. Perlmutter. "Blogging Down the Dictator? The Kyrgyz Revolution and Samizdat Websites." *International Communication Gazette* 69, no. 1 (2007): 29-50.

Lane, Ruth. "Political Culture: Residual Category or General Theory?" *Comparative Political Studies* 25, no. 3 (1992): 362-87.

Langman, Lauren. "From Virtual Public Spheres to Global Justice: A Critical Theory of Internetworked Social Movements." *Sociological Theory* 23, no. 1 (2005): 42-74.

Lee, Melanie. "Chinese Relish Crack in Great Firewall, Log on to Facebook." *Reuters* (February 29, 2012). Available at http://www.reuters.com/article/2012/02/29/us-china-internet-idUSTRE81S0K320120229 (accessed 24 March 2012).

Lessig, Lawrence. *Code: And Other Laws of Cyberspace, Version 2.0.* New York: Basic Books, 2006.

Liang, Zhang. *The Tiananmen Papers*. Edited by Andrew J. Nathan and Perry Link. New York: Public Affairs, 2001.

Lichbach, Mark Irving. 1987. "Deterrence or Escalation? The Puzzle of Aggregate Studies of Repression and Dissent." Journal of Conflict Resolution 31: 266-97. "Deterrence or Escalation? The Puzzle of Aggregate Studies of Repression and Dissent." *Journal of Conflict Resolution* 31, no. 2 (1987): 266-97.

Lichbach, Mark I. *The Rebel's Dilemma*. Ann Arbor: University of Michigan Press, 1995.

Lievrouw, Leah A. *Alternative and Activist New Media*. Cambridge: Polity Press, 2011.

Lijphart, Arend. "The Structure of Inference." In *The Civic Culture Revisited*, edited by Gabriel A. Almond and Sidney Verba, 1-33. Boston, MA: Little, Brown and Co., 1980.

Lin, Carolyn A., and David J. Atkin. *Communication Technology and Social Change: Theory and Implications*. Mahwah, NJ: Lawrence Erlbaum Associates, 2007.

Lohmann, Susanne. "Rationality, Revolution and Revolt: The Dynamics of Informational Cascades." Stanford, CA: Stanford University Graduate School of Business, Paper #1213, 1992.

Lohmann, Susanne. "The Dynamics of Informational Cascades: The Monday Demonstrations in Leipzig, East Germany, 1989-91." *World Politics* 47, no. 1 (1994): 42-101.

Long, J. Scott, and Jeremy Freese *Regression Models for Categorical Dependent Variables Using Stata*. 2nd ed. College Station, TX: Stata Press, 2006.

Mangalindan, J.P. "China: Facebook's Undiscovered Country." *CNN Money* (January 17, 2011). Available at http://tech.fortune.cnn.com/2011/01/17/how-facebook-can-conquer-china/ (accessed 26 March 2012).

Margolis, Michael. "E-Government and Democracy." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 765-82. Oxford: Oxford University Press, 2007.

Marshall, Monty, Ted Gurr, and Keith Jaggers. "Polity IV Project: Political Regime Characteristics and Transitions, 1800-2010." edited by Center for Systemic Peace. Arlington, VA: George Mason University, 2011.

Mason, T. David. "Nonelite Response to State Sanctioned Terror." *Western Political Quarterly* 42, no. 4 (1989): 467-92.

Mason, T. David, and Dale A. Krane. "The Political Economy of Death Squads: Toward a Theory of the Impact of State-Sanctioned Terror." *International Studies Quarterly* 33, no. 2 (1989): 175-98.

McAdam, Doug and Ronnelle Paulsen. "Specifying the Relationship between Social Ties and Activism." *American Journal of Sociology* 99 (1993): 640-67.

McAdam, Doug, John D. McCarthy, and Mayer N. Zald. *Comparative Perspectives on Social Movements: Political Opportunities, Mobilizing Structures, and Cultural Framings*. Cambridge University Press, 1996.

McAdam, Douglas. "Conceptal Origins, Current Problems, Future Directions." In *Comparative Perspectives on Social Movements. Political Opportunities, Mobilizing Structures, and Cultural Framings*, edited by John D. McCarthy Douglas McAdam, and Mayer Y. Zald, 23-40. Cambridge: Cambridge University Press, 1996.

McAdam, Doug, Sidney Tarrow, and Charles Tilly. *Dynamics of Contention. Cambridge*. Cambridge: Cambridge University Press, 2001.

McCarthy, John D., and Mayer N. Zald. "Resource Mobilization and Social Movements: A Partial Theory." *American Journal of Sociology* 82, no. 6 (1977): 1212-41.

McPhail, Clark and John D. McCarthy. "Protest Mobilization, Protest Repression, and Their Interaction." In *Repression and Mobilization*, edited by Hank Johnston and Carol Mueller Christian Davenport, 3-32. Minneapolis, MN: University of Minnesota Press, 2005.

Meier, Patrick P. "The Impact of the Information Revolution on Protest Frequency in Repressive Contexts " Paper presented at the 50th International Studies Association (ISA) Convention New York, NY, February 15-18, 2007.

Meyer, David S. "Protest and Political Opportunities." *Annual Review of Sociology* 30 (2004): 125-45.

Milbrath, Lester, and M. L. Goel. *Political Participation*. 2nd ed. Chicago, IL: Rand McNally, 1977.

Milner, Helen V. "The Digital Divide: The Role of Political Institutions in Technology Diffusion." *Comparative Political Studies* 39, no. 2 (2006): 176-99.

Milner, Helen V. "The Digital Divide: The Role of Political Institutions in Technology Diffusion." In *American Political Science Association*. Philadelphia, PA, 2003a.

Milner, Helen V. "The Global Spread of the Internet: The Role of International Diffusion Pressures in Technology Adoption." In *Interdependence, Diffusion, and Sovereignty*. University of California, Los Angeles, 2003b.

Mishler, William. and Richard. Rose. "Learning and Re-Learning Regime Support: The Dynamics of Post-Communist Regimes." *European Journal of Political Research* 41, no. 1 (2002): 5-36.

Mitra, Ananda. "Marginal Voices in Cyberspace." *New Media & Society* 3, no. 1 (2001): 29-48.

Moore, Barrington. *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*. Boston: Beacon Press, 1966.

Moore, Malcolm. "China Makes Skype Illegal." *The Telegraph* (December 30, 2010). Available at http://www.telegraph.co.uk/technology/internet/8231444/China-makes-Skype-illegal.html (accessed 26 March 2012).

Moore, Will H. "Rational Rebels: Overcoming the Free-Rider Problem." *Political Research Quarterly* 48, no. 2 (1995): 417-54.

Moore, Will H. "Repression and Dissent: Substitution, Context, and Timing." *American Journal of Political Science* 42, no. 3 (1998): 851-73.

Morozov, Evgeny. *The Net Delusion: The Dark Side of Internet Freedom*. New York: PublicAffairs, 2011.

Morris, Merrill, and Christine Ogan. "The Internet as Mass Medium." *Journal of Computer-Mediated Communication* 1, no. 4 (1996): n.p.

Mossberger, Karen, Caroline J. Tolbert, and Ramona S. McNeal. *Digital Citizenship: The Internet, Society, and Participation*. Cambridge, MA: MIT Press, 2008.

Muller, Edward N., and Karl-Dieter Opp. "Rational Action and Rebellious Collective Action." *American Political Science Review* 89, no. 471-487 (1986).

Muller, Edward N., and Erich Weede. "Cross-National Variation in Political Violence: A Rational Action Approach." *The Journal of Conflict Resolution* 34, no. 4 (1990): 624-51.

Muller, Edward N., and Mitchell A. Seligson. "Civic Culture and Democracy: The Question of Causal Relationships." *The American Political Science Review* 88, no. 3 (1994): 635-52.

Murdoch, Steven J., and Ross Anderson. "Tools and Technology of Internet Filtering." In *Access Denied: The Practice and Policy of Global Internet Filtering*, edited by John G. Palfrey Ronald J. Deibert, Rafal Rohozinski, and Jonathan Zittrain, 57-72. Cambridge, MA: MIT Press, 2008.

"Muslim Brotherhood to Participate in 25 January Protest." *Egypt Independent* (January 23, 2011). Available at http://www.egyptindependent.com/node/303296 (accessed 24 March 2012).

Nam, Taehyun. "What You Use Matters: Coding Protest Data." *Political Science* 39, no. 2 (2006): 281-87.

Naughton, John. "Contested Space: The Internet and Global Civil Society." In *Global Civil Society 2001*, edited by Marlies Glasius and Mary Kaldor Helmut Anheier, 147-68. London: Centre for the Study of Global Governance, London School of Economics, 2001.

Neuman, W. Russell, Bruce Bimber, and Matthew Hindman. "The Internet and Four Dimensions of Citizenship." In *The Oxford Handbook of American Public Opinion and the Media*, edited by Lawrence R. Jacobs and Robert Y. Shapiro, 22-42. Oxford: Oxford University Press, 2011.

Newton, Kenneth, and Pippa Norris. "Confidence in Public Institutions: Faith, Culture, or Peformance?" In *Disaffected Democracies: What's Ailing the Trilateral Democracies?*, edited by Susan J. Pharr and Robert Putnam, 52-73. Princeton: Princeton University Press, 2000.

Newton, Kenneth. "Trust, Social Capital, Civil Society, and Democracy." *International Political Science Review / Revue internationale de science politique* 22, no. 2 (2001): 201-14.

Newton, Kenneth. "Social and Political Trust." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Kingemann, 342-61. Oxford: Oxford University Press, 2007.

Newton, Kenneth. "Social Capital and Democracy." In *Beyond Tocqueville: Civil Society and the Social Capital Debate in Comparative Perspective*, edited by Michael W. Foley and Mario Diani Bob Edwards, 225-34. Hanover, NH: Tufts University Press, 2001.

Nickens, Bradley Harrison. "Postmaterialism and Democracy: What Does the Postmaterialist Value Shift Mean for Democracy?" Virginia Polytechnic Institute and State University 2004.

Nie, Norman, and Lutz Erbring. "Internet and Society: A Preliminary Report." Stanford, CA: Stanford Institute for the Quantitative Study of Society, Stanford University, 2000.

Noelle-Neumann, Elisabeth. "The Spiral of Silence: A Theory of Public Opinion." *Journal of Communication* 24, no. 2 (1974): 43-51.

Noelle-Neumann, Elisabeth. *The Spiral of Silence: Public Opinion-Our Social Skin*. 2nd ed. Chicago: University of Chicago Press, 1993.

Norris, Pippa. "The Bridging and Bonding Role of Online Communities." *The International Journal of Press/Politics* 7, no. 3 (2002): 3-13.

Norris, Pippa. *Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide*. Cambridge: Cambridge University Press, 2002.

Norris, Pippa. "Political Protest in Fragile States." Paper presented at the International Political Science Association World Congress, Fukuoka, Japan, July 13, 2006.

Oberschall, Anthony. "Social Conflict and Social Movements." Englewood Cliffs, NJ: Prentice-Hall, 1973.

Oberschall, Anthony R. "Rational Choice in Collective Protests." *Rationality and Society* 6 (1994): 79-100.

Ogan, Christine. "Communication Technology and Global Change." In *Communication Technology and Social Change: Theory and Implications*, edited by Carolyn A. Lin and David J. Atkin, 17-35. Mahwah, NJ: Lawrence Erlbaum Associates, 2007.

Olson, Mancur. *The Logic of Collective Action*. Cambridge, MA: Harvard University Press, 1965.

Olson, Parmy. "Egypt's Internet Blackout Cost More Than OECD Estimates." *Forbes* (February 2, 2011). Available at http://www.forbes.com/sites/parmyolson/ 2011/02/03/ow-much-did-five-days-of-no-internet-cost-egypt/ (accessed 25 March 2012).

Opp, Karl-Dieter. "Group Size, Selective Incentives, and Collective Action." In *Theories of Political Protest and Social Movements: A Multidisciplinary Introduction, Critique, and Synthesis*, edited by Karl-Dieter Opp, 45-90. New York: Routledge, 2009.

OpenNet Initiative (ONI). "Pulling the Plug: A Technical Review of the Internet Sutdown in Burma." Cambridge, MA, 2007. Available at http://opennet.net/sites/opennet.net/files/ONI_Bulletin_Burma_2007.pdf (accessed 23 March 2012).

OpenNet Initiative (ONI). "Internet Filtering in Oman." Cambridge, MA, 2009. Available at http://opennet.net/sites/opennet.net/files/ONI_Oman_2009.pdf (accessed 17 March 2012)

Opp, Karl-Dieter and Wolfgang Ruehl. "Repression, Micromobilization and Political Protest." *Social Forces* 69 (1990): 521-47.

Ostrom, Elinor. "Collective Action and the Evolution of Social Norms." *The Journal of Economic Perspectives* 14, no. 3 (2000): 137-58.

Ostrom, Elinor, and James Walker. "Neither Markets nor States: Linking Transformation Processes in Collective Action Arena." In *Perspectives on Public Choice: A Handbook*, edited by Dennis C. Mueller, 35-72. Cambridge: Cambridge University Press, 1997.

Ostrom, Vincent, and Elinor Ostrom. "Cultures: Frameworks, Theories, and Models." In *Culture Matters: Essays in Honor of Aaron Wildavsky*, edited by Richard J. Ellis and Michael Thompson Aaron B. Wildavsky, 79-90. Boulder, CO: Westview Press, 1997.

Page, Jeremy. "Beijing Blocks Protest Reports." *Wall Street Journal*, January 31, 2011. Available at http://online.wsj.com/article/SB1000142405274870483270457613810779590744.html (accessed 4 April 2012).

Papacharissi, Zizi. "The Virtual Sphere. The Internet as a Public Sphere." *New Media and Society* 4, no. 1 (2002): 9-27.

Patrick, G. "Political Culture." In *Social Science Concepts: A Systematic Analysis*, edited by Giovanni Sartori, 265-314. Beverly Hills, CA: Sage Publications, 1984.

Perlmutter, David D. "The Internet: Big Pictures and Interactors." In *Image Ethics in the Digital Age*, 2nd ed., edited by John Stuart Katz, Larry Gross, and Jay Ruby, 1-26. Minneapolis: University of Minnesota Press, 2004.

Pierson, Paul. *Politics in Time: History, Institutions and Social Analysis*. Princeton: Princeton University Press, 2004.

Plant, Robert. "Online Communities." *Technology in Society* 26, no. 1 (2004): 51-65.

Poe, Steven C., and C. Neal Tate, Linda Camp Keith, and Drew Lanier. "Domestic Threats: The Abuse of Personal Integrity." In *Paths to State Repression: Human Rights Violations and Contentious Politics*, edited by Christian Davenport, 71-108. New York: Rowan and Littlefield, 2000.

Poe, Steven C., and C. Neal Tate. "Repression of Personal Integrity in the 1980's: A Global Analysis." *American Political Science Review* 88, no. 4 (1994): 853-72.

Przeworski, Adam, and Fernando Limongi. "Modernization: Theories and Facts." *World Politics* 49, no. 2 (1997): 155-83.

Putnam, Robert D. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster, 2000.

Putnam, Robert D. *Democracies in Flux: The Evolution of Social Capital in Contemporary Society*. Oxford: Oxford University Press, 2002.

Putnam, Robert D. *Making Democracy Work*. Princeton: Princeton University Press, 1993.

Quirk, Patrick W. "Iran's Twitter Revolution." *Foreign Policy In Focus*, 17 June 2009.

Randle, Michael. "Militarism and Repression." *Alternatives* 7 (1981): 61-144.

Rasler, Karen. "Concessions, Repression, and Political Protest in the Iranian Revolution." *American Sociological Review* 61, no. 1 (1996): 132-52.

Regan, Patrick M., and Daniel Norton. "Greed, Grievance, and Mobilization in Civil Wars." *The Journal of Conflict Resolution* 49, no. 3 (2005): 319-36.

Reisinger, William M. "The Renaissance of a Rubric: Political Culture as Concept and Theory." *International Journal of Public Opinion Research* 7, no. 4 (1995): 328-52.

Roberts, Hal, and John Palfrey. "The EU Data Retention Directive in an Era of Internet Surveillance." In *Access Controlled: The Shaping of Power, Rights and Rule in Cyberspace*, edited by John G. Palfrey Ronald J. Deibert, Rafal Rohozinski, and Jonathan Zittrain, 36-54. Cambridge, MA: MA: MIT Press, 2010.

Rochon, Thomas R., and Daniel A. Mazmanian. "Social Movements and the Policy Process." *Annals of the American Academy of Political and Social Science* 528 (1993): 75-87.

Rosenau, James N. and David Johnson. "Information Technologies and Turbulence in World Politics." In *Technology, Development, and Democracy: Conflict and Cooperation in the Information Age*, edited by Juliann E. Allison, 55-78. Albany, NY: State University of New York Press, 2002.

Roycroft, Trevor. "Internet Subscription in Africa: Policy for a Dual Digital Divide." *Telecommunications Policy* 27, no. 1-2 (2003): 61-74.

Sabl, Andrew. "Community Organizing as Tocquevillean Politics: The Art, Practices, and Ethos of Association." *American Journal of Political Science* 46, no. 1 (2002): 1-19.

Sarkees, Meredith R. and Frank Wayman. *Resort to War: 1816 - 2007*. Washington, D.C.: CQ Press, 2010.

Schwankert, Steven. "China Blocks YouTube, Restores Flickr and BlogSpot." *PC World*, 18 October 2007.

Seligson, Mitchell A. "The Renaissance of Political Culture or the Renaissance of the Ecological Fallacy?" *Comparative Politics* 34, no. 3 (2002): 273-92.

Semetko, Holli A. "Political Communication." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 123-43. Oxford: Oxford University Press, 2007.

Sewell, William H. Jr. "Space in Contentious Politics." In *Silence and Voice in the Study of Contentious Politics*, edited by Aminzade Ronald R, Jack A. Goldstone, Doug McAdam, Elizabeth Perry, William H. Sewell Jr., Sidney Tarrow, and Charles Tilly, 51-88. Cambridge: Cambridge University Press, 2001.

Shi, Tianjian. *Political Participation in Beijing*. Cambridge, MA: Harvard University Press, 1997.

Snow, David A., and Robert D. Benford. "Master Frames and Cycles of Protest." In *Frontiers in Social Movement Theory*, edited by Aldon Morris and Carol McClurg Mueller, 133-55. New Haven: Yale University Press, 1992.

Steinberg, Marc W. "The Roar of the Crowd: Repertoires of Discoures and Collective Action among the Spitalfields Silk Weavers in Nineteenth-Century London." In *Repertoires and Cycles of Collective Action*, edited by Mark Traugott, 57-88. Durham, NC: Duke University Press, 1995.

Stohl, Michael, and David Carleton. "The Foreign Policy of Human Rights: Rhetoric and Reality from Jimmy Carter to Ronald Reagan." *Human Rights Quarterly* 7 (1985): 205-29.

Stolle, Dietlind. "Social Capital." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann. Oxford: Oxford University Press, 2007.

Sunstein, Cass R. *Republic.Com 2.0*. Princeton: Princeton University Press, 2009.

Swidler, Ann. "Cultural Power and Social Movements." In *Social Movements and Culture*, edited by Hank Johnston and Bert Klandermans, 25-40. Minneapolis: University of Minnesota Press, 1995.

Tarrow, Sidney. *Power in Movement: Social Movements and Contentious Politics*. Cambridge: Cambridge University Press, 1998.

Telesin, Julius. "Inside Samizdat." *Encounter* 40, no. 2 (1973): 25-33.

Thornton, Patricia M. "Framing Dissent in Contemporary China: Irony, Ambiguity and Metonymy." *The China Quarterly* 171 (2002): 661-81.

Tilly, Charles. *From Mobilization to Revolution*. Reading, MA: Addison-Wesley, 1978.

Tolbert, Caroline, and Ramona S. McNeal. "Unraveling the Effects of the Internet on Political Participation." *Political Research Quarterly* 56 (2003): 175-85.

Touraine, Alain. *The Voice and the Eye: An Analysis of Social Movements*. Cambridge: Cambridge University Press, 1981.

"U.N. Envoy Ends Mission to Myanmar." *Associated Press*, October 2, 2007.

van de Donk, Wim, Brian D. Loader, Paul G. Nixon, Dieter Rucht. *Cyberprotest: New Media, Citizens and Social Movements* New York Routledge, 2004.

Verba, Sidney, Norman H. Nie, and Jae-on Kim. *Participation and Political Equality: A Seven-Nation Comparison*. Chicago: University of Chicago Press, 1978.

Verba, Sidney, Kay Schlozman, and Henry Brady. *Voice and Political Equality*. Cambridge, MA: Harvard University Press, 1995.

Vijayan, Jaikumar. "Proxy Servers Pressed into Action to Keep Web Access in Iran." *Computerworld* (June 22, 2009). Available at http://www.computerworld.com/s/article/9134653/Proxy_servers_pressed_into_action_to_keep_Web_access_in_Iran (accessed 25 March 2012).

Walker, Steven G., and Ivy S. Lang. "The Garrison State Syndrome in the Third World: A Research Note." *Journal of Political and Military Sociology* 16, no. 1 (1988): 105-16.

Wauters, Robin. "China Blocks Access to Twitter, Facebook after Riots." *Tech Crunch* (July 7, 2009). Available at http://techcrunch.com/2009/07/07/china-blocks-access-to-twitter-facebook-after-riots/ (accessed 26 March 2012).

Walther, Joseph B., Jeffrey F. Anderson, and David W. Park. "Interpersonal Effects in Computer-Mediated Interaction." *Communication Research* 21, no. 4 (1994): 460-87.

Weimann, Gabriel. "On the Importance of Marginality: One More Step into the Two Step Flow of Communication." *American Sociological Review* 47, no. 6 (1982): 764-73.

Welzel, Christian and Ronald Inglehart. "Mass Beliefs and Democratic Institutions." In *The Oxford Handbook of Comparative Politics*, edited by Carles Boix and Susan C. Stokes, 297-316. New York: Oxford University Press, 2007.

Welzel, Christian, and Ronald Inglehart. "Political Culture, Mass Beliefs, and Value Change." In *Democratization*, edited by Christian W. Haerpfer, Patrick Bernhagen, Ronald F. Inglehart, Christian Welzel, 126-44. Oxford: Oxford University Press, 2009.

West, Darell M. *The Next Wave: Using Digital Technology to Further Social and Political Innovation*. Washington, D.C.: Brookings Institution Press, 2011.

Wheeler, Deborah L. . *The Internet in the Middle East: Global Expectations and Local Imaginations in Kuwait*. Albany: State University of New York Press, 2006.

Wildavksy, Aaron A. "Choosing Preferences by Constructing Institutions: A Cultural Theory of Preference Formation." *American Political Science Review* 81, no. 1 (1987): 3-21.

Wnuk-Lipinski, Edmund. "Civil Society and Democratization." In *The Oxford Handbook of Political Behavior*, edited by Russell Dalton and Hans-Dieter Klingemann, 675-92. Oxford: Oxford University Press, 2007.

World Values Survey. "World Values Survey 1981-2008 Official Aggregate V.20090901." edited by ASEP/JDS. Madrid, 2009

World Values Survey. "Values Change the World." edited by World Values Survey Association. Stockholm: World Values Survey Association, n.d.

Xu, Jun, and J. Scott Long. "Confidence Intervals for Predicted Outcomes in Regression Models for Categorical Outcomes." *The Stata Journal* 5, no. 4 (2005): 537-59.

Zald, Mayer N., and John D. McCarthy. *Social Movements in an Organizational Society*. Piscataway, NJ: Transaction Publishers, 1987.

Zetter, Kim. "China Censors: The Tiananmen Square Anniversary Will Not Be Tweeted." *Wired* (June 2, 2009). Available at http://www.wired.com/threatlevel/2009/06/china-censors-internet-before-tiananmen-square-anniversary/ (accessed 6 April 2012).

Zha, Wei, and David D. Perlmutter. "Blogs as Stealth Dissent? 'Eighteen Touch Dog Newspaper' and the Tactics, Ambiguity and Limits of Internet Resistance in China." In *International Media Communication in a Global Age*, edited by Thomas J. Johnson Guy J. Golan, and Wayne Wanta, 277-95. New York: Routledge, 2009.

Zheng, Yongnian, and Guoguang Wu. "Information Technology, Public Space, and Collective Action in China." *Comparative Political Studies* 38, no. 5 (2005): 507-36.

Ziegenhagen, Eduard. *The Regulation of Political Conflict*. New York: Praeger, 1986.

Zittrain, Jonathan, and Ben Edelman "Empirical Analysis of Internet Filtering in China." Berkman Center for Internet and Society, Harvard Law School, 2002.

Zittrain, Jonathan. *The Future of the Internet--and How to Stop It*. New Haven: Yale University Press, 2009.

Zittrain, Jonathan, and John Palfrey. "Reluctant Gatekeepers: Corporate Ethics on a Filtered Internet." In *Access Denied: The Practice and Policy of Global Internet Filtering*, edited by John G. Palfrey Ronald J. Deibert, Rafal Rohozinski, and Jonathan Zittrain, 103-22. Cambridge, MA: MIT Press, 2008.