AID AND COMFORT TO THE ENEMY? INTERNATIONAL NEWS MEDIA, COST SENSITIVITY, AND INTERSTATE WAR

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This dissertation examines the question: To what extent does the international news media influence the outcome of interstate wars? It considers the longstanding charge that media reports of public debates about foreign policy provide 'aid and comfort to the enemy.'

New theory is proposed that addresses this policy problem facing democracies, and also addresses gaps in the theoretical literature on the causes of war. The theory advanced in this dissertation is that the presence of the international news media influences the outcome of wars by providing an additional channel through which information about leaders' cost sensitivity is revealed and by reciprocally influencing the beliefs and behavior of leaders and their foreign adversaries in the conduct of wars. Novel variables representing major phases in the emergence of the international news media are defined. Original research is conducted using primary and secondary sources to characterize the media by year in individual states. The novel media variables are combined with variables from other studies to create a dataset spanning 90 interstate wars involving 51 different states from 1823 through 1990. Hypotheses based on the theory are tested using a multinomial logistic regression model.

The results of this study partially support the theory in that the type of media in a war initiator state is strongly and significantly associated with a higher probability of winning. Unexpected findings regarding the influence of media speed on the probability of winning, and a

failure to find a relationship between media and the probability of losing require further investigation. Overall, however, the presence of the international news media appears to influence the outcome of interstate wars.

The results have important implications for future theoretical research as well as for policy choices regarding the proper role of domestic debates and media reporting thereof. Additional research is required to confirm the findings, examine the unexpected findings, and to examine the relevance of the findings in other eras and other phases of war. Deeply rooted assumptions within society that media reporting on wars conflicts with national security interests must be revisited as part of an examination of policy implications of the findings.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PREFACE

Like many milestones, this dissertation marks both an ending and a beginning. As I complete the project, I can report that I am eagerly looking forward to the next phase of my career. But this is also an appropriate time to reflect on the path that led me to this point.

I must say that I feel privileged and honored to have had the opportunity to pursue doctoral studies. It's a luxury to be able to dedicate oneself to the pursuit of ideas, to trying to further our knowledge about how the world works, to trying to share that knowledge through teaching and writing. It's a privilege and honor I hope to be able to live up to in the future. This is also an appropriate time to note that I got to this point with the help of a lot of great people.

I owe a debt of gratitude to so many people that I can't name them all. But I do wish to thank a few individuals whose support has been invaluable the past few years. Thanks are due first to my dissertation committee for the latitude and guidance they gave me, often in equal measure. Professor Goldstein, who took a lot of chances on me during my time at GSPIA, but none so great as agreeing to chair my committee. Professor Dunn, for giving me a glimpse into the vast fields of public policy, research design and knowledge utilization. And Professors Gormley and Savun for giving me the freedom to discover my own way even when they knew better. To all of you: this end product, while flawed and far from perfect, is much stronger for your support.

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1.0 INTRODUCTION

Does the news media ‘harm the troops’ or ‘embolden the enemy’? Does the news media affect the outcome of international wars by transmitting reports of domestic debates to foreign leaders, thereby revealing weakness or low resolve? Or does the news media facilitate robust debate of foreign policy and thereby contribute to greater success? To what extent does the international news media influence the outcome of wars?

This dissertation seeks to answer these questions. It does so by first examining the charges and countercharges that are leveled at those who participate in debates of foreign policy, next drawing on available literature to develop a theory explaining how the media might have such influence, then collecting data, and finally conducting an empirical test of the theory.

This chapter begins by introducing the problem being studied in a bit more detail and posing specific research questions to be answered by this study. It goes on to lay out for the reader the bounds and limitations of the study, the approach used to examine the problem, and the overall structure of the research project. The chapter closes by describing the organization of this paper. The chapter begins next with a discussion of the problem.

1.1 DISCUSSION OF THE PROBLEM

Foreign policy debates in wartime regularly feature the charge that one actor or another has 'harmed the troops' or 'helped the enemy' by openly expressing a particular point of view or publicly sharing a particular piece of information. The media is frequently implicated in this charge because the media publishes reports about public debates and distributes them such that they become available to the enemy. The accused participants in public debate and their 'accomplices' in the media defend their actions on a variety of grounds that tend to be related to the concept of free speech. But amid the charges and countercharges is the question: does the distribution of news reports about foreign policy debates actually influence the outcome of wars? This section examines the charge of 'aid and comfort to the enemy' by reviewing examples of the charge, and noting the range of circumstances in which the charge is leveled, the kinds of actors that level the charge, and the kinds of actors at whom the charge is leveled. First, examples of the charge of 'aid and comfort to the enemy' are examined.

1.1.1 The Charge: Aid and Comfort to the Enemy

Those who speak publicly about foreign policy matters in times of war are sometimes charged with 'harming the troops', 'emboldening the enemy', or even treason because they are believed to provide 'aid and comfort to the enemy'. The charge is leveled in a wide variety of circumstances.

At times, particular individual actors are charged with ‘aiding the enemy’ and/or ‘harming the troops’ – or both. The charge was leveled at Senator John Kerry during his 1984 election campaign:

> … retired general George S. Patton, son of the famous World War II general and honorary chairman of Shamie's veterans' committee, called Kerry "soft on communism" and said that, by protesting the war, Kerry "gave aid and comfort to the enemy and probably caused some of my guys to get killed" (AP 1984).

At other times, the charge is not leveled at any particular actor or actors. At times a domestic debate taking place among the general public is blamed for influencing the outcome – winning or losing - of a war. Secretary of Defense Rumsfeld connected the views of the broad American public to the success of the conflicts in Iraq and Afghanistan:

> The enemy hears a big debate in the United States, and they have to wonder: 'Maybe all we have to do is wait and we'll win. We can't win militarily.' They know that. The battle is here in the United States (Rumsfeld 2005).

At still other times, policymakers assert that domestic criticism of particular policies provides a variety of forms of aid to the enemy. In testimony before Congress, Attorney General John Ashcroft charged critics of the recently-enacted USA PATRIOT act with ‘aiding the terrorists’:

> …to those who scare peace-loving people with phantoms of lost liberty; my message is this: Your tactics only aid terrorists - for they erode our national unity and diminish our resolve. They give ammunition to America's enemies, and pause to America's friends. They encourage people of good will to remain silent in the face of evil (2001).

The charge of helping the enemy is not just leveled by those in power against their critics. It is also at times invoked against those in power. Former Vice President Cheney recently asserted a link between Obama administration handling of the Khalid Sheikh Mohammed

(accused mastermind of the September 11 attacks) prosecution and aid to the enemy, saying in a recent interview that: “I think it’s likely to give encouragement — aid and comfort — to the enemy” (Politico.com 2009).

The notion that domestic speech can help the enemy is not unique to contemporary U.S. politics. In World War II, German propaganda minister Goebbels warned citizens that the enemy is often listening to domestic speech:

> He who speaks about the war and its prospects should always speak as if the enemy were listening. In many cases, he actually is. Each thoughtless word from our side gives him new hope and courage, and therefore prolongs the war… (Goebbels 1944).

The news media is frequently included in the charge of aid to the enemy, whether implicitly or explicitly. Vice President Spiro Agnew was a frequent critic of the media and asserted that the media could directly help the enemy:

> Vice President Spiro T. Agnew said Monday that if the North Vietnamese launch a successful isolated attack in South Vietnam as U.S. troops withdrew, the American news media will unintentionally aid Hanoi by portraying the enemy victory as a failure of the Vietnamization program (AP 1971).

The link between the media and harm to the troops is taken as an article of faith among the military community. As the U.S. military began its assault on Afghanistan in 2001, the Pentagon was regarded as having tightly controlled sensitive military news, in stark contrast to prior wars. Barry Zorthian, the chief spokesman for the American war effort in Vietnam from 1964 to 1968, said [the Afghanistan] conflict is "much tighter than Vietnam…Saigon was almost wide open compared to this," Mr. Zorthian said. "We gave out much more information, and we had no real problems with the media giving away information that would harm the troops" (Becker 2001).

The assertion of media complicity in providing aid and comfort to the enemy is not limited to the United States. The media in Israel is routinely cautioned in regard to its coverage of acts of terrorism. Israeli professor Raphael Cohen-Almagor, founder and director of the Center for Democratic Studies at the University of Haifa has written extensively about media coverage of acts of terrorism in Israel and elsewhere. He points to troubling episodes wherein the media is criticized for advancing the agenda of terrorists, and offers suggestions to reporters and editors for avoiding such problems (Cohen-Almagor 2005). Similarly, in Britain, opposition parties demanding an inquiry into the management of the Iraq war were cautioned by Foreign Secretary Margaret Beckett about how the media transmit Parliamentary debates far and wide: "Our words in the House today will be heard a very long way away. They can be heard by our troops who are already in great danger in Iraq…" (Webster 2006).

These examples show that the charge of 'aid and comfort to the enemy' is leveled by a variety of actors, against a variety of actors, in a variety of circumstances. Those accused of aiding the enemy do not dispute the charges, for the most part. Rather, they offer a variety of justifications for their speech, which are considered next.

1.1.2 The Justification: Democratic values

Those on the receiving end of the charges of aiding the enemy respond that public debates of foreign policy are justified and even essential within a democracy. The justifications take two forms. The first justification is that speaking out is a fundamental right of citizens in a

democracy. Lawrence Korb[1], former Assistant Secretary of Defense under President Reagan asserted that "criticism of war policy is patriotic" in a recent essay defending critics of the Iraq war (Korb 2008). He retrospectively examines policy decisions by administrations of both parties during the Cold War and argues that most would have benefited from an open debate among leaders and the public. On a similar note, noted constitutional scholar and presidential adviser Louis Marshall argued during the final year of World War I that "free criticism [is] a fine thing for a nation at war." Further, that "it is the duty of every citizen to do his part toward winning the war, to give…his loved ones and all of his possessions to it. That means a constant discussion of it, and of the means of winning it, and a constant consideration of its purposes and its problems" (Pach 1918).

A second justification is that open debate strengthens policies and contributes to broader public support. In an examination of the U.S. presidency and foreign policy, historian Stephen Ambrose argues that policies which were subjected to the most public debate were in fact the most successful. And, conversely, he argues that policies devised and implemented in secret fare much worse. "The great lesson," he argues, "is that secrecy and surprise are the enemies of democracy; open and prolonged debate is the great power of democracy. The policies that have failed have tended to be those adopted by presidents without meaningful debate…" (Ambrose 1991, p. 136).

As for its role, the news media argue that publication of news reports about foreign policy debates is justified because it facilitates the open debate advocated by Ambrose and others. Typical of this reasoning is Salon.com's justification for publishing in 2006 the second round of photos of Abu Ghraib prisoners being detained: "America – and the world – has the right to

[1] Lawrence Korb is also former Dean of the Graduate School of Public and International Affairs at the University of Pittsburgh.

know what happened in our name." Making these images available to the public is intended to spur "a democratic society… [to] investigate well-documented abuses by its soldiers" (Shapiro 2006). Since then, US administrations of both parties have sought to prevent the release of an additional 2000 photos of detainee abuse, citing concern that, in President Obama's words, they would "inflame anti-American public opinion and…put our troops in greater danger." In court filings demanding release of the photos for media publication, The American Civil Liberties Union argued that disclosure and publication "critical for helping the public understand the scope and scale of prisoner abuse as well as for holding senior officials accountable for authorizing or permitting such abuse" (Zeleny 2009). The arguments advanced in favor of and opposed to release of the Abu Ghraib photos are typical of the debate between those who prefer that particular information or points of view related to foreign policy be kept private and those who favor widespread publication.

Rather than *disputing* the alleged impact of their comments, those accused of providing 'aid and comfort to the enemy' respond by *justifying* their speech in terms of their rights and duties as citizens. But in the next section, an unexamined premise that is at the heart of this study is explored. Do media reports actually influence the outcome of wars?

1.1.3 An unexamined premise: does the news media influence wars?

Whatever the merits of these arguments, it is noteworthy that an underlying premise – that media reports of foreign policy debates transmitted to the enemy actually harm the troops or help the enemy – goes unexamined and unchallenged. But is this premise in fact valid? Do media reports of foreign policy debates actually 'harm the troops'? Do they provide aid and comfort to the enemy and thereby influence the outcome of wars?

How could media reports of foreign policy debates influence the outcomes of wars by providing 'aid and comfort to the enemy'? What chain could connect the phenomenon of media-reported public debates (the cause) to war outcomes (the claimed effect)? A causal chain connecting the alleged cause and effect must address at least two elements: the influence of information about public debates on the enemy's conduct of war, and the availability of the media as a channel for information about such debates to reach the enemy.

There are innumerable facets of this problem. In order to develop a tractable problem statement, it is vital to limit the scope of the inquiry. In the next section, the causal elements considered here are used as a basis for narrowing the analytic focus.

1.1.4 Narrowing the analytic focus

The charge of providing aid and comfort to the enemy through public discussion[2] does not appear confined to particular types of actors or particular types of information. The conception of what could provide aid to the enemy - the kinds of information, expressed by what kinds of actors, in what form – appears to be highly context-sensitive. At times the charge is leveled by an incumbent administration at an opposition politician; at other times, the charge runs in the opposite direction. At times the charge is leveled at politicians on the left; other times at politicians on the right. At times the charge is leveled at private citizens or commentators. The charge is not unique to the United States; actors in other countries level the charge as well. No particular type or class of information appears to be the exclusive subject of the charge.

[2] The discussion is explicitly focused on *public*, as opposed to *clandestine*, exchanges of information such as in episodes of espionage.

But in every case, the accused actor expresses a point of view or shares information *in public*, and reports of such public statements are published in the news media, where they are widely distributed to friend and foe alike. The news media is a common thread in this phenomenon and serves as the basis for narrowing the analytic focus of this study. Information reaching the enemy is a necessary precondition of that information having any influence on that enemy and thereby affecting the outcome of a war. The international news media is a channel whereby information about domestic foreign policy debates is gathered and distributed far and wide – potentially reaching the enemy.

But the media has not always existed in the form it does today. The first newspapers emerged in the 17th century (Weber 2006) and were followed through the centuries by a succession of new forms of media as society and technology evolved. The media has changed in practically every dimension over the centuries, with today's media bearing little resemblance to the first newspapers. To the extent the media plays a role by disseminating information to the enemy, its influence would be expected to vary with those variations in the form and extent of the media as it emerged.

The media provides a practical basis on which to narrow the problem being studied. The resulting problem statement is presented next.

1.2 PROBLEM STATEMENT

The problem investigated by this study is, then: does the international news media influence the outcome of wars?

No study to date has empirically examined whether in fact media distribution of foreign policy debates somehow harms prospects for foreign policy success by informing the enemy. Extensive literature examines how a range of variables influence the onset, duration and outcome of wars. As would be expected, most of this literature on the causes of war is focused on such tangible factors as weapons, soldiers, terrain, military strategy and the like. But this literature has not thus far considered the potential role of the media as an information channel to the enemy. Other literature examining wartime leadership presents particular instances in history when information about public opinion influenced leaders' decision-making. But the question being investigated here is whether, above and beyond anecdotal instances throughout history, there is a systematic relationship between the presence and character of the international news media and the outcomes of wars.

1.3 OVERVIEW OF METHODOLOGY

This study draws on available literature to construct a causal model that connects public debates of foreign policy with war outcomes. One part of that causal model is then empirically evaluated. Original research is conducted to gather data representing the emergence of the international news media over the past two centuries. A statistical model is created to empirically examine whether variations in news media explain variations in war outcomes, while controlling for many other factors known to influence wars. The statistical and substantive results of the model are interpreted and policy implications are drawn. An agenda for future research is presented at the conclusion of the paper.

The statistical model developed in this dissertation builds on a model previously published by D. Scott Bennett and Alan Stam in a 1998 article and republished by Dan Reiter and Alan Stam as a book chapter 2004. This model, which will be referred to as the Bennett & Stam model, examines the influence of 14 main-effects variables plus 8 interaction variables on war outcomes. Their model includes the spectrum of factors whose influence on war has been theorized over the past several decades, including material factors such as balance of forces, troop strength, surprise, and distance as well as intangible factors such as regime type, levels of repression, and issue salience. This dissertation builds on the Bennett & Stam model by introducing variables representing the international news media. Doing so enables the examination of the influence of the media while controlling for all the other factors thought to influence wars. No attempt is made to revisit the debates over the influence of the many variables included in Bennett & Stam's model. Rather, their model is taken as a representation of what is collectively thought to influence wars, so that the role of the media might be examined in the full context of all that is already known about wars.

1.4 RESEACH QUESTIONS

The current study is guided by an overall research question which is in turn supported by three sub-questions focused on specific facets of the problem:

Main Research Question: To what extent does the international news media influence the outcomes of interstate wars?

Sub-Question 1: To what extent is the influence of the international news media modified by regime type?

Sub-Question 2: To what extent does the international news media differentially influence war initiators and targets?

Sub-Question 3: To what extent is the influence of the international news media modified by war duration?

Ten hypotheses are advanced in response to the above research questions. They are presented near the end of the theory chapter beginning on page 84. Before describing the organization of the remainder of this paper, the limitations and assumptions surrounding the project are briefly discussed next.

1.5 LIMITATIONS

This study examines only one element in a causal chain connecting public debates to war outcomes. Therefore, unexamined confounding factors could be present. At the same time that the international news media is emerging, there may be parallel changes in the way public debates take place, the way they influence leaders, the way adversaries interpret debates among the enemy, the way wars are conducted, changes in society, advances in technology including computers, and so on. Every effort is made to control for a wide variety of factors known to influence the outcome of wars.

1.6 DELIMITATIONS

This study is delimited to the years 1823 through 1990 due to data availability. Thus, this study examines the influence of the media on war outcomes over roughly the past one hundred and seventy years. It does not address how public debates may have interacted with news media or other mechanisms to influence outcomes in other eras. During the era being examined, the international news media underwent dramatic change, evolving from single-page, special-purpose publications to 24 hour global coverage. Future work should extend the study to include wars which occurred from 1991 through the present, to examine the influence of more recent shifts in the nature of the media.

This study relies on a statistical model to examine the influence of the news media on war outcomes. It seeks to complement qualitative examinations of the phenomenon in particular published historical accounts. It does not seek to qualitatively examine additional individual cases.

Only variables that contribute to a statistically strong model can be incorporated in the study. Therefore, some aspects of the problem that are otherwise within the scope of the study may fall out of reach of the current study due to limitations in dataset size, the particular character of individual variables, and/or modeling techniques.

The current study is built on Bennett & Stam (1998) and therefore selectively draws on their research design. Doing so enables a comparison of the current study's findings with Bennett & Stam's well-known results. This choice of model may in some ways unforeseen ways hamper the accuracy, precision or utility of the findings. If necessary, future research will build on a foundation that overcomes any such limitations.

1.7 ASSUMPTIONS

The current study draws in part on recent developments in bargaining models of war in two ways. First, bargaining models of war are consulted to formalize an important finding from the empirical literature on war: that leaders care about their adversaries' level of cost sensitivity, or resolve, regarding international issues and disputes the resolution of which may involve war. Second, bargaining models of war are consulted to generate specific predictions about how the presence of the international news media may affect the outcome of strategic interactions between states engaged in war. Because war is a strategic interaction, the introduction of any new factor necessarily affects the beliefs and choices made by leaders on both sides. The ultimate influence of any new factor (such as the emergence of the news media) on war outcomes must be considered within the context of such strategic interaction. Bargaining models are well-suited to the examination of strategic interactions and can suggest how the introduction of new factors ultimately affects the optimal choices for both sides and the likely outcomes that result.

Each of the insights drawn from bargaining models of war is based in part on an assumption of rationality on the part of leaders. The first insight – that leaders care about resolve – is amply demonstrated in the empirical literature and hence the resort to bargaining models does little more than formalize an already-accepted mechanism in the conduct of war. The assumption of rationality built into this insight adds little. On the other hand, the second insight drawn from bargaining models – the specific predictions about the eventual influence of the presence of the media – is based heavily on the formal logic of particular bargaining models. Therefore, it is appropriate to briefly consider the assumptions implicit in bargaining models in light of the alternative conceptions available to the field on international relations.

Bargaining models used to generate specific predictions about the influence of the media are built on two important mechanisms: a model of strategic interaction, and a set of rules that the participants in such strategic interaction are assumed to follow. There is no substitute for the first mechanism when studying war: each leader makes decisions with an eye toward how the adversary will react. Each leader necessarily forgoes some courses of action in favor of others partially out of consideration of the anticipated reaction of the adversary. To fail to consider the adversary's reaction is to ignore the strategic character of war. But the other mechanism built into bargaining models – the set of rules leaders are assumed to follow as they consider their moves within a strategic interaction – are the subject of broad debate within the field of international relations scholarship. In particular, the assumption of rationality on the part of leaders engaged in strategic interactions is known to have limitations.

The rational actor perspective assumes that individuals perceive the world accurately and arrive at decisions through an open intellectual process. A variety of intellectual challenges to this assumption have been raised. The cognitive approach[3] challenges this perspective by arguing that "individuals are much more closed-minded due to their beliefs and the way they process information – that is, they resist adapting to changes in the environment" (Rosati 1995, p. 53).

Several scholars have argued that the beliefs and cognitive processes of policymakers affect how they see the world and what actions they take in the context of a particular foreign policy issue (Rosati 1988). The cognitive approach challenges the assumptions of rationality usually applied to the analysis of human interaction (Allison 1969; Simon 1996). As opposed to the assumption that actors are "open-minded and adaptable to changes in the environment," the

[3] See also Allison (1969), Simon (1971), Steinbruner (1974) for more in-depth discussion of cognitive approaches.

cognitive approach suggests that individuals tend to be "more closed-minded due to their beliefs and the way they process information…tending to resist adapting to changes in the environment" (Rosati 1995, p. 50). Other important works in the cognitive approach to international politics include Jervis, *Perception and misperception in international politics* (1976) and Steinbruner, *The cybernetic theory of decision* (1974).

The cognitive approach to international politics offers several intriguing hypotheses, such as prospect theory, the impact of leaders' operational codes, the lessons of history, and so on (George 1972; Holsti 1968; Levy 1997). But several scholars have noted that there are conceptual and methodological problems which complicate the task of testing these hypotheses empirically. For example, Levy argues that "the problem of identifying the actor's reference point, particularly in the absence of a theory of framing, makes it very difficult to rule out the alternative and more parsimonious hypothesis that behavior is driven not by framing, loss aversion, and the reflection effect in risk orientation, but rather by a standard expected-value calculation" (Levy 1998). For the purposes of this study, a clear distinction is made between the availability of information to a leader and the assessment of that information (Finel and Lord 1999).

Intellectual challenges to the assumption of rationality come from other bodies of literature as well. Organization theory argues that leaders filter new information through the dynamics of bureaucratic structures and only partially apply the available lessons from events. Studies of learning and entrepreneurship show how the implementation of new approaches during the course of a conflict can undercut the process of leaders' perspectives converging, as predicted by the rational approach. Constructivism suggests that war can be better understood "a social convention determined and shaped by norms and culture, not as a rationalist choice

reflecting costs and benefits" (Reiter 2003 'p.36).A recent work by Herbert Gintis highlights the shortcomings of game theory married with an assumption that leaders are purely rational (2009). He shows how insights from behavioral economics and other disciplines can be successfully married with game-theoretic modeling of strategic interaction to yield richer and ultimately more accurate predictions about human behavior

However, Gintis also highlights the current state of the field, namely that existing models of strategic interaction are not able to embrace cognitive, organizational and constructivist insights. Technical work to do so is only now beginning and promises to yield a rich new set of models of human behavior in the near future. But for the purposes of this study, the available models of strategic interaction are the best available. Therefore, this study proceeds by using the existing scholarship, noting that the predictions are likely to be flawed in important ways due to their pure reliance on an assumption of rationality. Subsequent research is required to refine the predictions made here based on better models that will undoubtedly follow.

1.8 ORGANIZATION OF DISSERTATION

The study begins in Chapter 2 by critically examining available theory and empirical research in several areas that are relevant to the problem being examined: first, theories of war as an information problem are presented in section 2.2; next, section 2.3 presents theories of democracies in war; finally, empirical and theoretical literature surrounding the emergence of the international news media is presented in section 2.4. The consistencies and gaps among these theories are highlighted at the conclusion of chapter 2, as a precursor to drawing the literature together to propose theory.

Chapter 3 draws on the literature to propose theory in the form of a causal model. The causal model connects public debates of foreign policy and media distribution of news reports with states' prospects for victory in war. Observable implications of the theory are presented and testable hypotheses are advanced.

Chapter 4, research design, presents a conceptual model appropriate to the study and presents the requirements for data collection. Because of the novel inclusion of the news media in the causal model, original research is conducted to operationalize the emergence of the media. Primary and secondary sources are drawn on to construct a conceptual model of the international news media in each individual state engaged in a war during the period under study. The research design is executed in the next chapter.

In Chapter 8, statistical models are created that represent the relationships among war outcomes and the international news media while controlling for other factors known to influence wars. Both main effects and interaction effects of media variables are considered. Models are subjected to a series of diagnostic tests to determine suitability for testing the hypotheses advanced in Chapter 3.

In Chapter 5, the results of the statistical models are presented. Comparisons between the various models demonstrate the explanatory role of variables reflecting the news media. Changes in predicted war outcomes as a result of variations in individual variables are presented. Finally, the hypotheses advanced in Chapter 3 are tested and the substantive and statistical results are presented.

Finally, Chapter 6 presents the policy and theoretical implications of the findings, and an agenda for future research.

The literature reviewed as part of this study is presented next in Chapter 2.

2.0 LITERATURE

2.1 INTRODUCTION TO THE CHAPTER

Examining the idea that the international news media influences the outcome of wars demands the consideration of several separate but related phenomena functioning in concert. First, because information is what the media gathers and distributes, it requires a model of war that is substantially about information, as opposed to the largely kinetic conception based on soldiers, tanks, etc. that is featured in many studies of war. Second, the particular kinds of information contained in public debates about foreign policy that are alleged to be harmful to one side (or helpful to the other side) must be specified. Third, the capacity of the international news media to gather and transmit the requisite types of information such that it can potentially exert a helpful or harmful influence must be understood. These three elements – war as an information problem, particular kinds of information contained in public debates, and the media as a transmission channel - must all be considered in order to conceive of the international news media as influencing war outcomes.

This chapter examines literature illuminating each of these elements. The literature on bargaining models of war conceives of war as an information problem. Within that conception, the purpose of fighting and negotiating is for the parties to overcome incentives to conceal and misrepresent information. In particular, information regarding leaders' cost sensitivity – how

sensitive leaders are to the costs incurred in pursuit of a particular policy - is thought to be a critical factor in bargaining surrounding war. Literature on democracies in war discusses the sources of cost sensitivity and how cost sensitivity contributes to leaders' beliefs and decision-making. This literature argues that leaders are cost-sensitive to varying degrees depending on the issue at hand and their political circumstances. Through the mechanism of cost sensitivity, domestic political costs in the form of opinion opposed to war can influence war policy. The literature on the international news media examines the emergence of news gathering and reporting over the past two centuries. As the media emerged, economic incentives emerged which systematically contribute to media focus on foreign policy and wars, and a steady expansion in the speed, scope and geographic reach of the media.

Literature examining war as an information problem is presented first. But before doing so, the next section briefly considers how shifting emphasis in the study of war over the past few decades has led to the conception of war as an information problem.

2.2 THEORIES OF WAR AS AN INFORMATION PROBLEM

2.2.1 Shifting emphasis in the study of war

The study of war has undergone significant changes over the past several decades. Earlier work from the 1940's through the 1960's focused on system-level theories of international politics. Prominent among these is a large body of work exploring the so-called 'paradigm wars' between realism, liberalism and several less-prominent paradigms (Walt 1998). But the paradigm approach suffers from multiple inconsistent specifications (Lebow 1994) and therefore

significant challenges testing these against the empirical record. In a survey of the state of the field ten years ago, Levy argued that "as a field, international relations needs to shift its attention from the level of paradigms to the level of theories, focus on constructing theories and testing them against the empirical evidence, and leave the question of whether a particular approach fits into a liberal or realist framework to the intellectual historians" (Levy 1998, p. 145).

Given the shortcomings in systemic theories referenced above, it's not surprising that there has been a shift away from systemic-level analysis toward more examination of dyadic-level and societal-level explanatory variables. At the dyadic level, in addition to long-standing research on dyadic power relationships and power transitions, new research programs emerged within the past decade focused on enduring rivalries, bargaining, territorial contiguity, trade, and other relationships (George and Bennett 2005; Waltz 1997). This shift has been encouraged by the changed international landscape of the post-cold war era, with a decline in the structural imperatives of the bipolar world, the increasing salience of politically unstable smaller states and sub-state conflicts, and the increased availability of quantitative data on variables associated with war (Singer 1978). The finding that democratic states rarely go to war against each other has also encouraged a shift toward more examination of societal-level variables (Levy 1998).

In parallel with shifts in the emphasis of the field from systemic-level to societal-level and individual-level variables and theories, there has been a shift in the dominant methodologies used within the field. The earliest scientific examinations of international politics sought to identify causal factors by performing simple statistical correlations between occurrence of war and a variety of variables. By contrast, more recent work employs increasingly sophisticated techniques including time series and logistic regression. And more recent work also increasingly

draws on multiple methods, including statistical analysis, single and multiple case studies, and game theory to develop and test more sophisticated theories.

Commenting on methodology, Most and Starr observed in a series of articles (Most and Starr 1983, 1989, 1990) more than twenty years ago that scholarship examining the causes of war consists almost entirely of attempts to identify factors that are both necessary and sufficient for the onset of war. They argued that most factors identified within the literature cannot possibly be both necessary and sufficient because "through time and across space, similar factors could plausibly be expected to trigger different foreign policy acts … and plausibly lead to different results" (Most and Starr 1989, p. 383).

A number of scholars have argued through time that, rather than focusing on system-, dyad- or even unit-level variables, war must be viewed within the broader context of international politics. Perhaps acting on Clausewitz's or Schelling's advice[4], many modern scholars have examined war as bargaining. As contrasted with the search for static factors correlated with war, Kecskemeti, Pillar, etc. are examples of scholars that treat war as the result of leaders' choices as they interact with one another within the context of circumstances (Kecskemeti 1958; Pillar 1983). The interactions considered in bargaining models include exchanges of information. This makes such models potentially helpful in examining the role of an information-transmitting mechanism such as the international news media. Such information models of war are considered next.

[4] Schelling (1960) remarked that most conflicts "are essentially *bargaining* situations."

2.2.2 War as an information problem

Political disputes can be thought of as a contest over scarce goods. Consider that most international crises consist of some zero-sum issue. The most basic example is the division of disputed territory, but the concept applies equally to policy disputes where each side has a preferred outcome and the players seek some middle ground[5]. The allocation of scarce resources without resort to force necessarily involves bargaining between the disputants to locate an acceptable settlement.

Blainey, Morrow and others observed that most wars end in some kind of negotiated settlement (Blainey 1973; Morrow 1989). This poses a puzzle as to why leaders are unable to reach negotiated settlements in advance. An important advance comes from Fearon who showed that negotiated settlements always exist which rational states should prefer to the cost and risk of war (Fearon 1995). Because war is costly Fearon shows that, "under very broad conditions, bargains will exist that genuinely rational states would prefer to a risky and costly fight" (Fearon 1995, p. 382). Fearon defends this argument with a formal proof, but a simple example illustrates the principle.

Consider two states that are bargaining over the division of $100. If they can agree on a split, they keep the entire sum. If one of the states prefers war, he can pay war costs of $20 and keep his expected share of the balance[6]. If each state has a 50% chance of victory, the expected value of the war option is $30, which is arrived at as follows:

[5] Excluded from this perspective are several classes of conflict where the issue in question is indivisible, and situations where the leaders are assumed irrational.
[6] This game is an example of the costly-lottery form shown in Figure 1.

Expected value = 50% chance of winning + 50% chance of losing – War costs

Which yields:

Expected value = (.5 x $100) + (.5 x $0) - $20 = $30

But note that either side could offer the opponent a better deal at the negotiating table. One state could offer to give $31 and keep $69 (or any of a range of more generous offers up to give $69, keep $31) which would leave both sides better off than the expected value of war. Fearon develops a rigorous proof showing that "the costs and risks of fighting open up a "wedge" of bargained solutions that risk-neutral or risk-averse states will prefer to the gamble of conflict. The existence of this *ex ante* bargaining range derives from the fact that war is inefficient *ex post*" (Fearon 1995, p. 388).

Note that in this example, the odds of victory are 50/50. Fearon demonstrates formally that, no matter what the odds, his conclusion holds - with two important caveats. A negotiated settlement will always exist that both sides prefer to war, provided *both parties agree on the odds of victory,* and that each player *believes the opponent is willing to exercise the option to pay the cost and go to war.*

These caveats form the basis of Fearon's argument that uncertainty regarding power and resolve must be an important cause of war. Because bargains exist that both sides would prefer to the cost and risk of war, Fearon argues that the inability to locate such settlements is an important explanation for war.

Thus, war can be conceived of as an information problem. Next, the particular kinds of information that are important in this conception of war are considered.

2.2.3 In particular, uncertainty about resolve

Fearon argues that "rational miscalculations of relative power and resolve must be due to private information." Furthermore, he shows that "war may result from the combination of private information and *incentives to misrepresent* that information in bargaining" (Fearon 1995, p. 382, emphasis added). States have an incentive to represent themselves as powerful or highly resolved[7] even when they are not. Because of the incentives to bluff, states have difficulty distinguishing sincere threats from insincere ones. The well-documented bluffing between Germany, Britain and Russia in the weeks before World War I illustrates the importance of private information and incentives to misrepresent[8]. Similarly, states sometimes underestimate an adversary's capabilities, as in Russia's assessment of Japan prior to the Russo-Japanese war. In that case, Japan had no way to reveal private information regarding her capabilities without compromising her own interests. The result was war (Lebow 1981).

Private information regarding capabilities and cost sensitivity, and incentives to misrepresent that information, are an important cause of war (Fearon 1995). Fearon arrives at this argument by examining a simple take-it-or-leave-it model. More realistic models show how the interaction between leaders in a crisis or war functions to reveal private information about capabilities and cost sensitivity. Within the framework of war as bargaining, the behavior of the leaders is shaped by the imperative to discover the true capabilities and cost sensitivity of their adversaries. The ways states interact to learn about this private information is reviewed next.

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[7] It is worth clarifying what Fearon means by power and resolve. Simply stated, power is the probability that one state would win in a military contest. Whereas Fearon somewhat simply uses the term 'power', other scholars prefer the more general term 'capabilities' to reflect the broader set of factors that might influence the odds of victory in a fight. Resolve is the willingness to exercise one's outside option – that is, to end the bargaining and fight. Resolve, then, is ones' cost sensitivity in the pursuit of the objective. A player that is more sensitive to costs is less resolved to fight, and, conversely, a player that is less sensitive to costs is more resolved to fight.

[8] See, for example, Konrad Jarausch (1969) for an examination of Hollweg's calculated risk.

2.2.4 Signaling audience costs

Given the imperative to discover the true capabilities and resolve of adversaries, states are thought to pursue a variety of tactics. Because states have incentives to deceive and withhold information, they cannot simply reveal the truth about their circumstances without risk to their interests (Schelling 1957). Therefore, much scholarship is focused on how states send credible signals that can be differentiated from 'cheap talk'. A variety of approaches obtain. First, states can incur actual costs by, say, mobilizing a large army over some distance. Second, states can incur political costs that are visible to the opponent. Our discussion is concerned with the latter.

Fearon argues that foreign policy crises occur at least partially in public, which makes it possible for domestic audiences to evaluate their leaders' performance. The institutionalized electoral constraints in democracies allow the domestic audience to impose large and transparent costs on leaders. Therefore, when democratic leaders choose to escalate international crises, their threats are taken as highly credible. However, others argue that leaders of almost all regime types are subject to political costs at the hands of the selectorate (Goemans 1995). So the audience cost phenomenon is relevant for both democracies and non-democracies. It just plays out slightly differently for different regime types. To the extent a leader can generate higher audience costs, he can send a more credible signal of resolve (Fearon 1994b).

Thus, leaders interact to reveal information about their level of resolve. As hinted in the above discussion, democracies interact in particular ways that set them apart from other types of states. The literature on democracies in war is examined next.

2.3 THEORIES OF DEMOCRACIES IN WAR

2.3.1 Democratic peace literature

This section considers several important facets of democracies in war that bear on this study. A substantial portion of the literature on war focuses on the performance of democracies in war. Early work in this area referred to this body of work as the 'democratic peace' literature, owing to the observation that democracies rarely fight one another. More recent work, however, has identified additional empirical regularities and hence uses the more general label 'democracies in war' to refer to this literature. The patterns observed in democracies' record in war are considered first, before turning to the theoretical explanations for those patterns.

Patterns in Democratic behavior in war

The democratic peace literature builds on Maoz and Russett's foundational paper which observed that democracies rarely fight one another (Bueno de Mesquita, Koch, and Siverson 2004, p. 256; Maoz and Russett 1993, p. 626). A significant amount of scholarly attention has been paid to this observation.

In the course of evaluating the democratic peace, scholars have observed a number of related empirical regularities. In their comprehensive study, Bueno de Mesquita et al identify seven patterns related to the democratic peace (2003, p. 218). These are: (1) the tendency for democracies not to fight another; (2) the tendency for democracies to fight with non-democracies with regularity; (3) the tendency for democracies to emerge victorious from their wars; (4) when disputes do occur between democracies, they reach peaceful settlements; (5) the tendency for democracies to experience fewer battle deaths and fight shorter wars when they initiate conflict;

(6) the tendency for transitional democracies to be more likely than other democracies to fight one another; (7) the tendency for major-power democracies to be more constrained to avoid war than less powerful democracies.

Although a few studies argue against the claim (see Farber and Gowa (1997)), most conclude that there is strong support for the claim (Bueno de Mesquita, Koch, and Siverson 2004; Chiozza and Goemans 2003; Gartzke et al. 2001; Mansfield and Snyder 2002; Maoz and Russett 1993; Oneal and Russett 1997). Surveying the wide range of studies of this issue, Bueno de Mesquita argues that "extensive, rigorous statistical tests all show a significant propensity for democracies to have been virtually immune from wars with one another (Bueno de Mesquita et al. 2003, p. 218).

The debate over whether there are valid patterns regarding democracies in war has been largely settled. However, the underlying cause or causes of these patterns is the subject of ongoing debate. The causes of these patterns have an important bearing on the subject of this study and are therefore examined next.

Debates about underlying causes of democratic behavior

Theories about the democratic peace tend to be based on either normative logic or institutional logic. Normative theories argue that democratic norms influence the behavior of leaders, making them less prone to go to war (Doyle 1983; Maoz and Russett 1993). Normative explanations for the democratic peace have been examined and weakened by some tests, but will in any case not be addressed here.

Institutional theories of the democratic peace, on the other hand, argue that institutions inherent in democracies make leaders accountable to various groups within society. Leaders who desire to retain elected office are expected to interact with and consider the views of various

interest groups, voting blocs, opposition parties and even the media. And, of course, regular elections are an ongoing reminder to leaders that they may be removed from office if the public does not approve of their policies (Bueno de Mesquita and Siverson 1995; Lake 1992). Underlying the institutional theories of the democratic peace are a variety of causal mechanisms, which are briefly reviewed next.

Rosato surveys the institutional explanations for the democratic peace and notes that several causal mechanisms flow from the accountability imposed by democratic institutions (Rosato 2003). First, that leaders are constrained by the general public's aversion for war, or by pressure from anti-war groups (Bueno de Mesquita and Lalman 1992). Second, that leaders are constrained by the slow mobilization for war that occurs within democracies, giving time for diplomatic solutions to prevail. And, on a related note, since democracies are slow to mobilize and must do so in public, they are unable to mount a surprise attack. Therefore, their foreign adversaries are able negotiate in good faith with democracies, thereby avoiding war (Maoz and Russett 1993). Finally, the processes by which democratic leaders are held accountable serve also to make the leader cautious about which conflicts to engage. Indeed, they will only select themselves into conflicts if they place a high value on the outcome of those conflicts, if they expect escalation to be popular at home, if there is a good chance that they will emerge victorious, and if they are prepared to fight hard. This sends a clear signal to other parties: "if a democracy escalates the crisis or stands firm, it must be highly resolved" (Bueno de Mesquita 2002; Fearon 1994a; Rosato 2003, p. 587; Schultz 1998). The first four of these explanations for the democratic peace argue that democratic institutions constrain leaders, whereas the last explanation argues that democratic institutions inform adversaries. To the extent it is supported by the literature, the informing perspective is helpful to this study and is examined next.

Theories of the informing role of democratic institutions

A variety of studies examine the possibility that an informing role played by democratic institutions is an important contributor to the democratic peace. Several scholars[9] have examined this question, but Schultz (1998) develops and tests a theory which explains whether and how the informing role might play out. This theory has potential application to this study and will therefore be examined at some length.

Using a formal model, Schultz (1998) suggests that the presence of a loyal opposition party decreases the *ex ante* probability of war by clearly revealing the state's preferences. The model assumes three important things about the opposition party. These assumptions are belabored here because they have implications beyond their immediate use by Schultz. The first assumption is that, like all political parties, the opposition prefers to hold office and selects strategies toward that end. This assumption implies that the opposition is aware of voter reaction to leaders' performance in foreign policy matters, because this affects voting in future elections. And it further implies that the opposition competes with the incumbent leaders. Foreign observers thus have two sources of information about the political costs of a given foreign policy issue (Gilligan and Krehbiel 1989). From the perspective of a foreign observer, then, two sources who are in competition are a more reliable indicator than a single source with a vested interest (Milgrom 1986).

Second, the domestic opposition is assumed to have access to relevant information regarding foreign policy matters. Members of the opposition party are likely to have previously held office and have insights or contacts into such matters. And the opposition party is also likely

[9] See Bueno de Mesquita (2004), Filson (2004), Powell (2004), Filson (2007)

to have a first-hand sense of the level of public support and other political ramifications surrounding a given foreign policy initiative.

Third, the competition between the incumbent and opposition parties is assumed to take place in public. “Open political debate means that foreign states can "overhear" the policy statements used to build electoral support” (Schultz 1998, p. 832). The public statements made by the domestic actors reveal the political parties’ incentives and strategy for gaining public support. Under this assumption, there must be minimal to no regulatory interference with public debate regarding foreign policy matters.

The model shows that domestic political opposition contributes to two important functions: its very presence lends additional credibility to the government’s threats, and it makes the government more selective about the threats it makes in the first place. Together, these mechanisms reduce the uncertainty surrounding the state’s claims about its level of resolve (Schultz 1998).

Schultz also examines the broader question of whether domestic institutions constrain leaders or inform adversaries (the underlying mechanisms of which were outlined above). He observes that the two perspectives imply different behavior. On the one hand, the constraining perspective implies that democracies incur uniformly high political costs for war, meaning that a targeted state should be more likely to resist than when it is threatened by a non-democratic state. On the other hand, the informing perspective implies that democratic states are less likely to bluff and therefore a targeted state should be less likely to resist a democracy than a non-democracy. These opposite implications form the basis of a critical test of the competing perspectives against the empirical record. The empirical record showed strong support for the

informing perspective. Schultz' test, while not conclusively rejecting the constraining perspective, does lend strong statistical support to the informing perspective (Schultz 1999).

Thus, democratic institutions, in addition to whatever else they do, contribute to informing adversaries. This finding is consistent with Fearon's theoretically-driven speculation that once a crisis is underway, the state that can generate audience costs faster is more likely to prevail (Fearon 1994a). Therefore – if democratic leaders can generate higher audience costs, targets are less likely to resist and democracies are more likely to prevail in the event of resistance. Because the democratic institutions help the state to generate audience costs, they are thought to contribute to the better win-loss record enjoyed by democracies. In the next section, the empirical and theoretical literature surrounding the emergence of the international news media is presented.

2.4 THE EMERGENCE OF THE NEWS MEDIA

It is useful to begin a survey of the literature on the emergence of the international news media by examining the nature of news and the media. One widely used definition of news suggests that "First, news is any… story which, in the opinion of the editor, will interest the readers of his paper (or the audience of his broadcast). Second, news is always completely true, or it is at least a set of facts that have been presented to the reporter as truth. Third, news has a quality of recency about it. Fourth, news has an element of proximity about it. Fifth, news must have some element of the unusual about it" (Allen 1930; Berry 1976, p. 27-28; Emery 1969; Groth 1930). The news media serves an informational function within society, and was described by Jurgen Habermas as the opening of a public sphere that complements and competes with the existing

private and state spheres (Habermas 1991). Marshall McLuhan is perhaps best known for coining the expression 'global village' but, more importantly for purposes of this study, whereas other scholars examined the content of the media, he argued that medium *is* the message (McLuhan 1964). Lasswell argues that three important social functions are carried through the various levels of communication within the media. These are "providing a watch on the environment and alerting the public to threats or problems developing in the world; Coordinating and categorizing the various elements of the social structure, so that members of the public can comprehend the forces with which they must cope to survive and prosper; and, handing on from one generation to the next the knowledge and ideas that represent our cumulative cultural heritage" (Smith, Lasswell, and Casey 1946, p. 238).

In a more practical sense, the earliest published form of news – the newspaper – is usefully defined as being available to a sizeable proportion of the public but also having the qualities of:

> First and foremost, a newspaper is published regularly and frequently (at least weekly)…Second, a newspaper, with so many issues to fill, includes a variety of different stories in each issue…Third, a newspaper displays a consistent and recognizable title or format; in other words, it gains an identity independent of whatever particular news items it happens to be carrying… (Stephens 1988)

This section examines the emergence of the international news media as it pertains to the subject of this study in five key areas: first, the conception of the media as opening a public sphere, second, the early emergence of a public sphere where none had existed before; third, the struggle between media independence and state control; fourth, the economic incentives that drive the media; and fifth, a taxonomy of the major phases through which the media has advanced over the past two centuries. The early emergence of the media is considered first.

2.4.1 Conceptions of the media

The literature examining the media suggests several conceptions of the media. The simplest conception sees the media as an information transmission channel connecting people. This conception is consistent with information theory that characterizes the direct consequences of exchanges of information. Scholars in this tradition include Glaser, Lasswell, Heidegger, and Holsti (Glaser 1995; Heidegger 1977; Holsti, John, and Smith 1967; Holsti 1968; Lasswell and Bryson 1948; Smith, Lasswell, and Casey 1946).

Mcluhan and other media scholars (Habermas 1991; Ivins et al. 1926; Levinson 1999; McLuhan 1962, 1964; McLuhan and Fiore 1967; Ong 2004) suggest different conceptions that consider the broader impact of the presence of the media. A key concept within this tradition is McLuhan's dictum that media are "extensions" of our human senses, bodies and minds. Habermas added that the media represents a public sphere, which mediates between the private sphere and the sphere of public authority.

Whereas the former conception of the media is closely related to the emergence of new forms of telecommunications technologies, the latter conception considers the societal impact of the media. In the former conception, the accuracy, value, sources and structure of information are important dimensions for understanding the impact of reports on leaders and events. However, in the latter conception, the very existence of the media is itself transformative: it extends the individual across time and space, and it bridges the formerly isolated private spheres and public authority spheres. More than simply transmitting information, the media under the latter conception transforms the conduct of public affairs by changing how the public engages public authorities, which in turn reciprocally changes how public authorities conduct public affairs. Considering the nature of the charge leveled at the media – namely, that it exerts an influence on

war outcomes by publishing reports about domestic events – it is this latter conception that is most important for the purpose of this study. In the next section, literature examining the emergence and the spread of a public sphere through history is presented.

2.4.2 A public sphere opens and spreads around the world

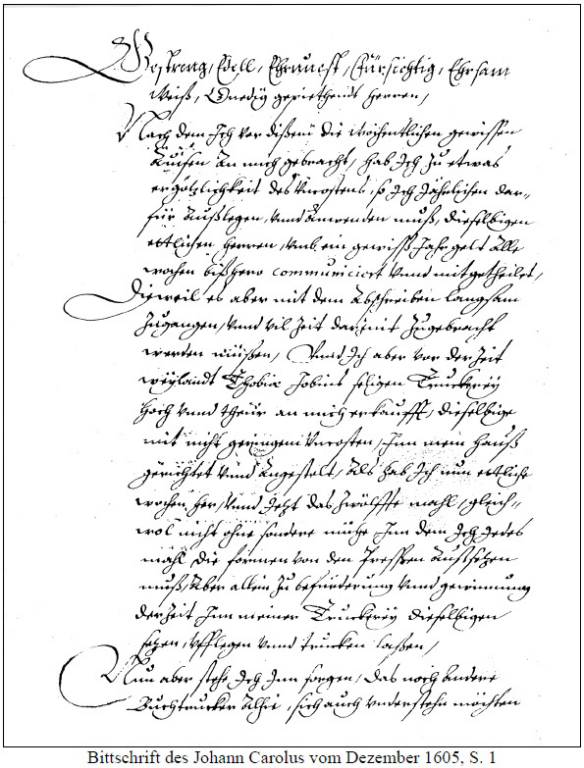
The international news media has emerged over the past two centuries and represents a shift in the role of the public in foreign policy. Its presence leads to both increased public engagement with leaders and to increased transparency regarding that engagement. As such, the media is a potentially important channel that systematically reveals information about public opinion to adversaries. At the turn of the 19th century, reports of domestic policy debates, public support, and public opposition to war could be collected by an adversary's diplomatic personnel or commercial actors and transmitted to the adversary's leaders via courier on horseback or via oceangoing vessel. At the turn of the 21st century, such reports are almost instantly available on CNN and al Jazeera, over the internet and via satellite TV. Information about foreign policy debates is now available on a routine basis to friend and foe alike. This section examines the birth of the media and its spread across the European continent and to European colonies.

The emergence of the international news media flows directly from Gutenberg's invention of movable type in the mid-fifteenth century. At that point, the ability to mass produce the written word came into being. Marshall McLuhan argued that print enabled man to develop a detached, private point of view. The new technology contributed to the rise of nationalism, industrialization, mass markets and universal literacy. And, importantly, "the ability to repeat the message in written form meant social, political and economic power" (Dunnett 1988, p. 4; Moran 1973).

The spread of print culture was intertwined with the changing landscape of religion and related conflict in the sixteenth and seventeenth centuries. Economic and religious forces contributed to the particular geographic evolution of print. The widely-dispersed demand for printed books led to the development of the international book trade. Because of the equipment and capital requirements of printing, publishing emerged as a cosmopolitan enterprise, and a division of labor developed between the center and periphery of the trade. The regions where printing emerged earliest - Germany, Italy, and Holland – came to dominate publishing in Latin countries, leaving the publishers that emerged later in other regions to specialize in vernacular languages (Starr 2004, p. 26-27). By 1490, at least one printing press is believed to have operated in every large city in Europe. The first press in the Western Hemisphere was in Mexico City in 1539, with others in South America soon thereafter. The first in the British colonies of North America was near Boston in 1638 (Desmond 1978).

The first published reports of various recent events that were publicly available on a regular basis – newspapers, in other words – appeared in Europe in the early seventeenth century. Most accounts place the first newspaper in Strasbourg in 1605 (see Figure 2-1) and Wolfenbuettel in 1609, closely followed by news weeklies in Basel, Frankfurt, Vienna, Hamburg, Berlin, Amsterdam, London and Antwerp (Stephens 1988; Weber 2008).

The English revolution and the Thirty Years War influenced the evolution of newspapers and printing in general. But by the late seventeenth century, while Europe recovered from the devastation, the press of England moved ahead in terms of its political position, employment of advertising, and rising circulation (Desmond 1978; Feather 1988).



Bittschrift des Johann Carolus vom Dezember 1605, S. 1

Figure 2 - 1. First Newspaper, Published In Strasbourg, 1605

During the eighteenth century, the universal newspaper emerged. Groth (1930) defines a universal newspaper as having seven characteristics: is regularly published, is printed mechanically, is available to the public, has comprehensive and universal contents, has contents of general importance, has current information, and operates as an economic enterprise. The universal newspaper has most of the features associated with newspapers as they would be known through the twentieth century.

By the second half of the nineteenth century the industrial revolution spread beyond England to the continent and beyond. The rise of nation states and imperialism led to large numbers of Westerners settling in all corners of the globe. Many of these affluent, literate individuals brought their demand for newspapers with them, leading to the establishment of English-language newspapers on all five continents. Vernacular press soon followed in most

regions. But the early dominance of the English press slowed the emergence of vernacular press, since the western-language press captured the available literature, the affluent audience and the associated advertising potential (Dunnett 1988, p. 6). Thus, a European model of the media had been established on the Continent and in many parts of the world by the nineteenth century. Next, the discussion turns to the struggle between the state and the media over control of the media.

Policy and practice of state control and censorship

The power of the press to challenge entrenched interests and the concomitant motivation of the state and of organized religion to control the press are part and parcel of Gutenberg's invention. Throughout the history of the press and the news media, states have attempted to control the press at some times while at other times exploited the power of the press to advance its interests. These conflicting approaches have meant that at times the press flourishes, expanding its political and economic power. But it also means that with some regularity the press has existed under censorship in one form or another. One of the first instances of the state exploiting the press occurred during the English Revolution (Darnton 1989). This section traces state control from this earliest period up to the nineteenth century.

After newspapers initially appeared in England during the 1620s, King Charles I banned them entirely for six years beginning in 1632 (Desmond 1978). As the revolution unfolded, the structure of government control gradually collapsed. The Star Chamber was abolished in 1641, press licensing and censorship ceased, government-granted press monopolies broke down, and the number of printers grew. During the years of armed conflict, the press expanded as both Parliament and the King used competing publications to present their views. Up to that point, well-established norms treated political issues as inappropriate for public discussion, but this

public airing broke down the secrecy that had long governed political communications (Stephens 1988).

The division of the press into the center and periphery as described above intersected with growing religious conflict to add other dimensions to the evolving struggle between press freedom and control. As churches and states attempted to exert control, they forced dissenters in many instances to flee to other countries. The exodus of the Huguenots from France contributed to Holland's emerging role as a center of Protestant publishing; English dissenters went across the channel to Holland to have their work printed, further strengthening the role of the Dutch press. Extraterritorial publishers found a market for the books and journals they printed all over Europe. As the language of the elite changed from Latin to French in the seventeenth century, press restrictions within France contributed to the Netherlands becoming a center of French publishing that was not officially approved. Such transnational and extraterritorial publishing frustrated state efforts to control the printed word. Censorship regimes thus had to tackle two distinct issues: controlling printing at home and regulating the import of printed material (Starr 2004).

On the Continent and within Britain, the emergence of independent journalism was influenced by complementary changes in politics and markets. In the 1690s, divisions between Whigs and Tories in England began to open up the space for a more diverse press that included opposition newspapers. At the same time, the fragmentation of power in both the Netherlands other European states opened up space for a competitive, semiautonomous transnational press. But it must be noted that the emerging public sphere of early modern Europe (Habermas 1991) was far from the democratic ideal.

While the early modern public sphere represented a shift away from political secrecy, it was still socially exclusive, subject to the influences of money and status, and routinely manipulated by those in power. A market for news emerged that freed the press from dependence on the state or officials for patronage, although the market was limited primarily to the elite public. The market for newspapers was limited in Britain by the stamp tax and in France by similar measures (Darnton, Roche, and Library 1989). Although the public sphere was opening, state policies continued for the most part to play a critical role in frustrating the emergence of an independent commercial press (Starr 2004, p. 45-46). Public opinion may have emerged as a new force in politics, but the public sphere that European states allowed to develop in the early modern period sharply limited the opinion that could be heard (Levy 1985; Starr 2004, p. 46).

The American Revolution played a critical role in permanently institutionalizing freedom of the press and a wider public sphere. The American Revolution introduced several important innovations: free speech as a constitutional principle; the Constitution itself written and published so that ordinary citizens could read it; government subsidies of the press rather than taxes; a comprehensive postal network with institutionalized postal privacy; a periodic census; and primary schooling was extended earlier to more of its population, including women (Starr 2004, p. 107). Although both the English and French revolutions also generated a flourish of public debate in print, the outcome of all this debate in the American case was far different. The crises that preceded the American Revolution established the central role of the press as a venue for public discussion that status and rights of the press were consolidated in the aftermath of the conflict. None of the European states had by then experienced a comparable transformation, and with the debatable exception of France, none would see such changes on any sustained basis until the middle of the nineteenth century. Not until the second half of the nineteenth century

would many European countries and Canada begin to catch up with the American movement toward broader communication and education. The American Revolution turned the page on press freedom in history (Starr 2004, p. 79).

Although the American Revolution established the legitimate role of press freedom, states continued then and continue today to make a variety of attempts to control the flow of information. This happens to varying degrees during both war- and peacetime and under both democratic and non-democratic regimes. The range of techniques employed by states has grown more sophisticated over time, including what is arguably the most powerful and still most prevalent form of censorship – manipulating the self-interest of the press so that the press itself exercises self-censorship out of fear for government punishment (Khazen 1999). Thus, rather than the press being either restricted or independent, a third category is apparent. Media independence evident in the empirical record runs from very low (*restricted* by the state) to medium (*de jure* independence, but self-censorship by the press) to high (*de facto* independence, as evidenced by active press criticism of the state).

The tension between the public demand for news and the state imperative to control and censor published news has never been resolved. The ebb and flow of state censorship of news continues to the present day, playing out in individual states. The next section presents the economic imperatives that drive the norms, practices and technology of the media.

2.4.3 Economic imperatives driving the media

Economic incentive to gather the latest news

The emergence of newspapers and the book trade were closely related to the rise of capitalism. But there were critical differences between the economic imperatives that drove

newspapers and books. The different imperatives of book and newspaper printing led to different technological patterns. A steam powered bed-and-platen press devised by Isaac Adams in 1830 (Starr 2004) became standard in book manufacture, while steam-powered cylinder presses, first put into operation by the London Times in 1814, became the standard in large-circulation newspapers.

The different imperatives of book and newspapers printing also led to different economic patterns. Book publishers were constantly seeking capital because of the slow returns on investment in books. Newspaper publishers, on the other hand, typically enjoyed low printing costs and could often sell their product in advance through subscriptions and advertising fees. So capital needs were not the major driving motivation for newspapers. Rather, newspapers sustained their subscription and advertising revenues by continuously furnishing fresh supplies of their distinctive raw material: news (Starr 2004, p. 32). Early newspapers invested significant energy, creativity and resources into finding new ways to get news stories and to get them into print before their competition. The media is driven by economic forces to constantly gather and report the latest news.

Economic incentive to expand reach of newsgathering

The expansion of trade and markets which accompanied the rise of capitalism helped newspapers to reach never-ending supplies of news. At the same time, the rise of global markets increased the demand for news about the world. Ben Franklin's Pennsylvania Gazette is considered the first modern newspaper to be commercially viable. The emergence of a market for mass circulation newspapers can be traced to the social and economic developments of the industrial revolution including changes in demographics, political institutions, technology,

communications, literacy and living standards. These changes dramatically increased potential demand and reduced supply costs.

With the advent of the industrial revolution, the performance and development of the press advanced rapidly. New production and editorial methods, and an easing of government restraints and taxes on the press contributed to expanding readership in the 1840s and 1850s. Better newspapers became available at a lower price, and newspapers became more appealing by a taking a broader view of the news and applying the concept of the 'human interest,[10] story. Larger circulations along with growth in advertising volume, enabled newspapers to afford larger staffs to gather and publish the news. The introduction of the telegraph brought a sense of immediacy and freshness to news reports and enabled the emergence of newspapers in cities everywhere, not just in capital or port cities (Desmond 1978). Early newspapers featured extensive coverage of foreign news – often devoting most of the front page to foreign dispatches - to satisfy this appetite. Over time, news about foreign wars came to play a major role in the emergence of the international news media, as discussed in the next section.

Economic incentive to cover foreign policy and war

The US-Mexican War, the revolutions of the 1840s in Europe, the Crimean War, and the Italo-Austrian War of 1859 all had a profound effect on the practice of newsgathering and publishing, and on the public appetite for daily news. For the first time, news about faraway wars could be rapidly gathered and brought to the reading public within days. The drama of the battles, suspense about the outcomes, and certainly the violence of these wars received close attention in the press. These and subsequent wars affected the lives of many and the public

[10] See Desmond (1937) for an engaging discussion of this important milestone in the development of the popular press.

needed to be informed of the issues and events. Newspapers were the only means for conveying the information to the public (Desmond 1978, p. 170).

The demands of war reporting in this era seem to have brought advances in the practice and standards of general news reporting that would likely otherwise not occurred. War correspondents learned valuable lessons which would eventually serve to improve the practice of gathering and disseminating news in peacetime. The rapid pace of events forces news organizations to act with little concern for expense, which led to advances in technology and communication that had enduring effects. The drama and suspense of war expanded the readership of newspapers, helped establish a habit of newspaper reading among the public, resulting in a cycle of growth the led to still better service to the public (Desmond 1978, p. 170-71).

The Crimean War brought the first grouping of news correspondents on overseas assignment, whether in war or in peace. In that, it made both press and political history. The correspondents were almost exclusively representatives of London publications, even though five nations were involved in the war. In subsequent wars, correspondents from other major powers began to also report from the scene of conflicts (Desmond 1978, p. 177).

Next, literature pertaining to the role of the media within international politics is considered.

2.4.4 Media as a channel for International Politics

The international news media has reciprocally influenced and been influenced by society and international politics. The emergence of each new type of new media has been accompanied by changes in how diplomacy and politics are conducted. New forms of media and new

technologies typically infringe upon the diplomatic protocols of the day. In his history of the telegraph and diplomacy, Nickles argues that because of institutional resistance to new technologies there are three eras in the conduct of diplomacy. Prior to the introduction of the telegraph, diplomacy was conducted face to face by ambassadors and envoys relying on diplomatic couriers; from 1851 to 1918, the telegraph was adopted as the dominant mode of diplomatic exchange; after 1851, even with the advent of radio, the telegraph remained an important mode of communication for diplomats. To this day, US State Department writing guidelines emphasize brevity, a holdover from the days of expensive, charged-by-the-word telegraphy (US State Department 2009). Historically, as new forms of media and new communication technologies have arrived on the scene, diplomats "scoffed at the new invention, journalists boasted that their influence had exploded, the public notices that its world was shrinking, as if the boundaries of home were stretching to meet the horizon" (Neuman 1996, p. 58). These themes are echoed in Douglass' account of the World Disarmament Conference of 1932-34 (Douglass, Bömer, and Dovifat 1932). Nevertheless, diplomats and policymakers have ultimately had to come to terms with new forms of media as they are introduced and become dominant.

Anecdotes from several eras illustrate the effect the international news media has had on international politics: After Samuel Morse's invention of the telegraph, Civil War-era leaders lamented that the "chilling influences of time and distance are all gone" (Mabee 1943, p. 207). Failure to embrace new forms of technology and media has also proven costly to leaders, as in the case of Russian czar Nicholas I who feared the telegraph's potential to spread information. Out of concern that the telegraph would prove subversive, Nicholas turned down a contract with Morse to build a telegraph system across his empire. It was an important blunder in that on the

eve of World War I, Russian telegraph lines were still so rudimentary that Russian Military officials were forced to use radio to communicate with commanders in the field. German commanders learned from listening to these un-coded Russian radio broadcasts the exact location of two key Russian units. Having this information proved decisive in the German success at the Battle of Tannenburg (Livesey, Livesay, and MacDonald 1989). Prior to the U.S. entry into World War I, the notorious Zimmerman telegraph was intercepted by British intelligence officials who had successfully broken German codes. In order to obscure the role of code-breaking in the incident, U.S. President Wilson leaked the telegram to the Associated Press, leading to U.S. entry into the war (Millis 1935, p. 407).

More recently, the Suez crisis of 1956 was the first to play out on TV. Initially, the BBC in early August reported sharply anti-Nasser reaction from a unified British government under Prime Minister Eden. Shortly, the Labour opposition became increasingly critical of the Eden government's stand and began to articulate that position to domestic and foreign audiences in BBC television broadcasts beginning August 10. Divisions in the resolve of the British government surrounding the crisis had become obvious to both the British public and to Britain's allies and adversaries (Marris and Thornham 2000).

In a 1968 speech shortly after announcing he would not seek reelection, U.S. President Johnson commented on the impact the media had had on the conduct of the Vietnam War and wondered aloud about what would have happened in earlier foreign policy crises:

> As I sat in my office last evening, waiting to speak, I thought of the many times of each week when television brings the war into the American home. No one can say exactly what effect those vivid scenes have on American opinion. Historians must only guess at the effect that television would have had during earlier conflicts on the future of this

> nation: during the Korean War, for example, at that time when our forces were pushed back there to Pusan; or World War II, the Battle of the Bulge, or when our men were slugging it out in Europe or when most of our Air Force was shot down that day in June 1942 off Australia (Mandelbaum 1982, p. 157).

While LBJ lamented the intrusion of the media into his conduct of the Vietnam War, other policymakers have taken full advantage of the media. In the moments preceding the first Gulf War, James Baker issued a message directly to Saddam Hussein on January 11, 1991 via CNN rather than via the top U.S. diplomat in Baghdad.

These episodes highlight the influence of the news media in two facets of international politics. The use of the media as a channel for explicitly communicating with adversaries is highlighted by the episodes involving President Wilson and Secretary Baker. The experience of Civil War-era leaders, Czar Nicholas I and President Johnson highlight that the media can also transmit unintended information to adversaries. While the experience of today's policymakers - observing and participating in events in fuller view of ordinary citizens than ever before in human history – is perhaps most vivid to contemporary observers, it is by no means unique. Each successive form of media has had similar effect, going all the way back to Gutenberg's invention of movable type and the subsequent introduction of the first newspapers. Each new form of media – culminating in today's 24/7 satellite news – has opened up formerly private diplomatic communication and brought that into the public sphere, bringing with it new norms of public engagement (Neuman 1996).

2.4.5 Phases in emergence of the media

The international news media as we know it today is the product of an evolution through a series of distinct phases, from early newspapers through the modern electronic media we know today. It's important to examine the phases that comprise this evolution because each new form of mass media has brought to the public more information and analysis and reciprocally expanding norms of public engagement. (Starr 2004) The evolution of the media did not happen in a smooth, orderly fashion. Rather, the dominant media in any given country at any given time is path-dependent, the result of a variety of economic, social, political and technological factors (Boyce, Curran, and Wingate 1978). Descriptions and definitions of the phases through which the news media typically evolves in any particular country are presented next.

Pre-universal newspaper

The earliest newspapers were usually exclusively tailored to the needs of a particular trade guild or a religious order. They were economically supported by these private interests and featured news of interest only to the principles. They were relatively small publications, consisting of a single sheet that was published only sporadically

Universal newspaper

The next stage in the evolution of the press is the universal newspaper. The universal newspaper is the forerunner of the newspaper as it is known to modern readers. Groth defines a universal newspaper as having seven characteristics: Is regularly published, is printed mechanically, is available to the public, has comprehensive and universal contents, has contents of general importance, has current information, and operates as an economic enterprise. (Groth 1930)

Press Agencies and the Telegraph

The invention of the telegraph had a profound effect on the press. Immediately after its demonstration in 1844 it was recognized for its potential to meet many human needs. The telegraph was the first invention in human history to travel faster than any available form of transport. Whereas the telegraph carried information at the speed of light of 186,000 miles per second, the railroads of the day could barely muster 2 miles per hour, and a carrier pigeon was clocked at 35 miles per hour. (Neuman 1996) Government, industry, and the press all quickly grasped the many uses for the new technology. Railroads had by then been built in many countries and were rapidly penetrating new areas. The new technology was promptly used to improve the performance and safety of railroads. This meant that the first telegraph offices in most cities were located in railroad stations. Undersea cables led to the completion of a worldwide communications network by around 1900. (Desmond 1978; Standage 1998)

The introduction of telegraph service had profound social significance. Before 1844, important newspapers were published almost exclusively in capitals and seaport cities - places where news originated or was brought from elsewhere and therefore most promptly and fully available. Other cities and towns were out of the mainstream of affairs, even if they had newspapers. Railroads had helped to connect these remote areas and reduce isolation by bringing in mail and newspapers from elsewhere. But railroads were ultimately slow and unreliable, and it was the telegraph which eventually connected even small towns and cities to the rest of the world. Telegraph service was also occasionally interrupted but, by contrast, it was extended more rapidly than rail service, and by 1870 it was possible for a newspaper in almost any town or city, certainly of North America or Europe, to receive and publish locally whatever was known at approximately the same time in the capitals and port cities.

In conjunction with the emergence and spread of the telegraph, the first press agencies emerged. As the demand for foreign news grew, newspapers everywhere faced the challenge of rising costs. The purpose of a press agency was to extend the reach of newspapers by sharing costs and thereby gathering news on a wider scale. A press agency would typically gather a comprehensive set of news reports and deliver those on a timely basis to dozens or hundreds of newspapers each day. These subscribing newspapers would then turn around and publish the news to their readership. (Unesco 1953)

By functioning on a large scale, the press agency could achieve the lowest cost of operation, and divide its costs among subscriber newspapers and private clients as well. (Desmond 1978, p. 133) The first four press agencies were Agence Havas, of Paris in 1832; the New York Associated Press in 1848; the Wolff'sche Telegraphen Buro, of Berlin in 1849; and the Reuters Telegram Company, Ltd., of London in 1851. The emergence of press agencies led to a dramatic increase in foreign news reporting in the major newspapers. A typical edition of the London Times or the Vienna post could now devote as much as half the front page to telegraph dispatches from afar. (Read 1999) (Fenby 1986)

The press agencies and the telegraph thereby brought the newspapers and residents of inland places into the mainstream of national and international life. In places where there had been no newspapers before, there was now reason to establish them. The publication of timely reports received by wire also had the effect of stimulating special interest among the people in public affairs and foreign news, helped create an informed society, and led to an increased sense of national unity.(Desmond 1937, p. 110) (Starr 2004, p. 153)

Radio

The first radio experiments began in the late 1890s. But the use of radio for commercial news broadcasting would have to wait until after the end of World War I. In the military, advances in radio were critical at first for naval operations and then more generally enhanced command-and-control of mobile units. World War I highlighted the vital importance of both communications infrastructure and mass media. The belligerents struggled over control of submarine cables and radiotelegraphy, invested in new radio technology, and conscripted the mass media into propaganda campaigns to mobilize patriotism at home and demoralize the enemy abroad. The explosion of radio during the following decade reinforced this growing awareness of power."(Starr 2004, p. 387)

Some of the earliest commercial radio broadcast stations were by KQW in San Jose, WHA in Madison Wisconsin, WWJ in New York and KDKA in Pittsburgh. (Desmond 1978) Warren G Harding was the first President whose voice was heard on the radio in 1923. Special events coverage was given impetus in 1927 when Charles A Lindbergh arrived in New York aboard the US Navy cruiser Memphis, on his return from France after his solo flight across the Atlantic. The London Naval Conference opening on January 21, 1930 in the British House of Lords became an historic occasion in shortwave radio broadcasting of the news. Although there had been earlier voice transmissions across the Atlantic between 1924 and 1929, the Naval Conference was the first live news event to be reported. Listeners became familiar with the voices of leading personalities in the worldwide drama of the 1930s, Roosevelt and Hitler among them. The abdication of Britain's Edward VIII on December 10, 1936, made Radio history. During the 1930s the public became accustomed to and came to expect man-on-the-scene coverage of important events around the world. At the same time, the public became accustomed to listening to the voices of world leaders so that they could judge for themselves the meaning of

the day's events. The style of news writing familiar to today's audience – using short sentences and simple, concise wording – was honed on the radio in the 1930s. (Desmond 1984a) (Stephens 1988)

In the United States, radio news began to prove it had arrived as a significant journalistic force when the Japanese attacked Pearl Harbor on December 7, 1941. There were no evening papers on Sunday, so from the first bulletin on the Mutual radio network, right after the wires flashed the news at 2:22 PM EST until Monday morning, the news of Pearl Harbor was a radio exclusive. (Stephens 1988) (Metz 1976) At the same time as it became established in journalism, communications grew to be a factor in economic growth and military power. Broader access to telecommunications more advanced long-distance networks, more rapid diffusion of innovation in communication technology and products became sources of economic and strategic advantage.

Television

Although experiments in the many technologies that comprise television had been ongoing for decades, the first broadcasts of electronic television occurred in 1936 in Germany, Britain and the United States. Commercial broadcasting would commence in Britain shortly thereafter, with over 20000 receivers in operation by September 1939 when the service was shut down following the German invasion of Poland. Service in the United States began in July 1941 but was interrupted by the Japanese bombing of Pearl Harbor. Broadcasting resumed in Britain and the United States following the war, achieving rapid growth on the 1950s. The development of television in France was slowed by political instability during the Fourth Republic and was did not flourish until the election of Charles de Gaulle. Within the USSR, the founders of the communist movement had selected cinema rather than radio as their preferred method of social and political communication. This foundation contributed to the slow introduction of television

until Prime Minster Nikita Khrushchev decided in the 1960s to feature television in the new consumer society he was building. Television within the Federal Republic of Germany would be set up by the occupying powers during the late 1940s and 1950s. Most other developed countries initiated television service during the 1950s, each governed by policies that emerged from their own distinct political landscapes. Lesser-developed countries' television service was, for the most part, established in the 1950s and 1960s by neighboring developed countries or by former colonial powers. (Smith and Paterson 1998)

Television was initially introduced with the notion that it would simply add pictures to existing radio broadcasts. But by the time it had become commercially well-established, it exercised unanticipated influence in transforming political and social life in democracies and non-democracies alike. It would have a symbiotic relationship with the consumer culture which emerged in the post-war years. The shape of television has changed over the past 60 years, shifting from a regulated, monolithic national medium to a more fragmented one with hundreds of broadcast, cable and satellite channels (Emery 1969; Gorman and McLean 2003; Smith and Paterson 1998).

Further important phases in the emergence of the news media include the advent of direct satellite television broadcast and the internet. Because this dissertation is limited to examining wars from the early nineteenth century through 1990, these later media phases are not reviewed here. This concludes the review of the literature on the emergence of the media, which is the final element to be considered. The literature reviewed in this chapter is summarized in the next section, before moving on to develop a theoretical explanation of the influence of the media.

2.5 CHAPTER SUMMARY: LITERATURE REVIEW

The literature examined in this chapter establishes a number of important points which bear on the question addressed by this dissertation. First, war can usefully be thought of as an information problem, which provides the basis media reports potentially influencing war outcomes. Second, the bargaining model of war suggests that leaders in war are driven by an imperative to discover information about their adversaries' cost sensitivity. In fact, some theorists argue that war serves an instrumental purpose of revealing this vital information. Third, the literature suggests that domestic debates occurring within democratic institutions impose costs and constraints on leaders which ultimately make it feasible for democratic leaders to send credible signals to adversaries. Fourth, the international news media is driven by economic incentives to gather and distribute news reports about these debates to friend and foe alike. And, finally, the empirical record demonstrates how the geographic reach, speed, independence and richness of media reporting have all varied significantly over the centuries. These points will be drawn together in the next chapter, where the task of developing a theoretical explanation for the influence of the international news media on war outcomes is undertaken.

3.0 THEORY

3.1 INTRODUCTION TO THE CHAPTER

This chapter draws on the existing literature to develop a theory explaining how the international news media influences the outcome of international wars. It begins by situating the media within the context of a conflict between two state actors and the democratic institutions of one of the states. From this picture, the elements that comprise the claim of aid and comfort to the enemy are enumerated. The elements of the claim are next examined in some detail, drawing on the literature. This leads to a discussion of the contributions of the literature and the shortcomings of the literature, which, in turn, leads to the theory advanced in this dissertation. After an examination of the theory, observable implications of the theory are drawn out, and a set of testable hypotheses is advanced.

The chapter begins by situating the media within the context of international politics.

3.1.1 Situating the media within international politics

It is useful to begin by explicitly situating the international news media within the context of two states engaged in a foreign policy dispute or war, and within the context of the democratic institutions of one of the states.

Consider two states, A and B, engaged in a war, with several international news media entities reporting on the war from within State B. Figure 3-1 illustrates the paths[11] that information takes to provide State A leader with insight into State B leader's political costs related to the war. The process of generating political costs takes place within the democratic institutions of State B, as the public and elites express support and/or opposition to war. The domestic discussion includes the policy positions of the domestic opposition parties that are competing for electoral support in future elections. The discussion may also include elite opinion from actors such as elder statesmen, pundits or prominent citizens. The discussion may also include the opinion of ordinary citizens in the form of letters to the editor, formal or informal opinion polls, public demonstrations of support of opposition for the incumbent leader's policy, and so forth.

State A's leader learns about State B leader's political costs through a variety of channels, including diplomacy and the news media. The media process begins when war events occur and news about these events is gathered by reporters in the field. The news media entities resident in State B publish news of these war events to the general public. The news media also report the ensuing domestic discussion. To the extent that the media entities in State B distribute their news products internationally, they make these reports available to foreign audiences, including the State A leader. As the international news media has emerged over the past two centuries, such international distribution of news has increasingly become the norm. Within this context, then, the State A leader has the opportunity to gain insight into the political costs related to State B leader's foreign policy. These insights should contribute to State A leader's beliefs

[11] Figure 3-1 represents the flow of information, not necessarily the geographical relationships between the site of war events and the sites of government. The war could occur within the territory of either state or remote from either.

about State B and ultimately influence decisions made about how to conduct the fighting and negotiating that comprise the war.

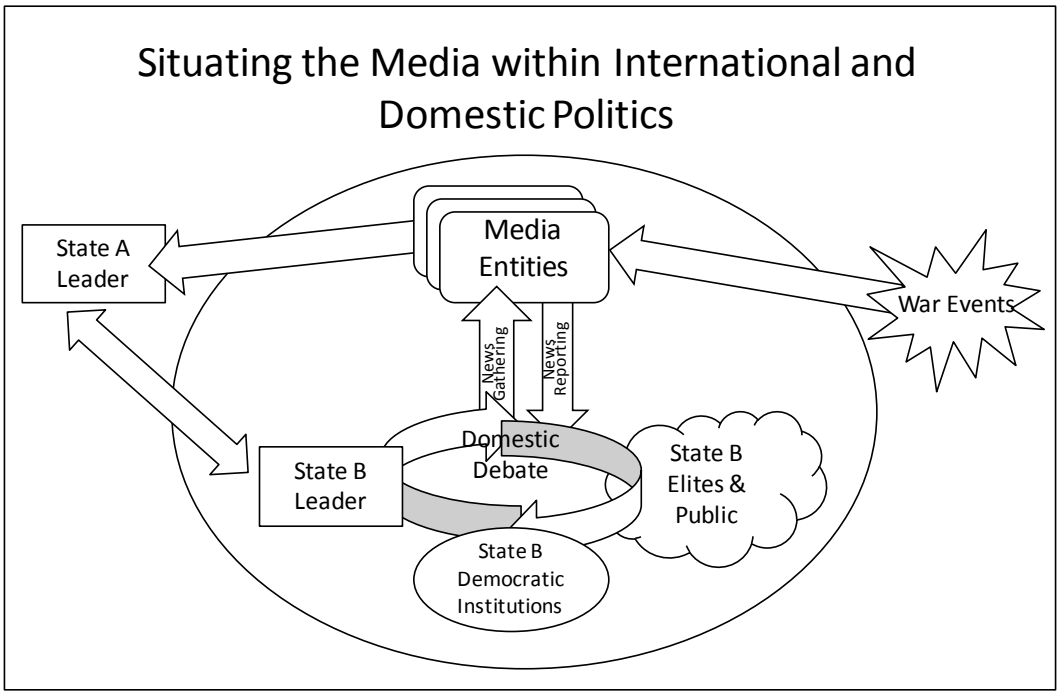


Figure 3 - 1. Situating the International News Media (Maxwell 2010)

The international news media, then, plays a role independent of the domestic political institutions within State B. The media both contributes news reports about war events to the domestic discussion and reports on those domestic discussions. The media also distributes reports of those domestic discussions to audiences near and far, potentially including State A's leader. With the news media properly situated, the next section addresses the claim of aid and comfort to the enemy.

3.1.2 Aid and Comfort to the Enemy: What are the elements of the claim?

Drawing on the literature, it is possible to break the claim of aid and comfort to the enemy down into its constituent elements. For domestic debates about foreign policy matters, or media reports of the same, to provide aid and comfort to the enemy, the following elements must be present: An *information channel to the enemy* carrying information about *domestic debates* that is generated by *democratic institutions, affecting enemy beliefs* in the context of *strategic interaction.* Each of these elements is next examined in some detail.

3.2 EXAMINING THE ELEMENTS OF A CAUSAL MODEL

3.2.1 An *information channel*

Viewed in its most basic sense, the media is nothing more than a pipe or a channel connecting one entity to another. It simply moves information. In this conception, the media is akin to a pair of tin cans and some string that might be used by children to communicate across the backyard. Or, in a more advanced vein, two telegraph machines connected by copper wires strung from wooden poles across great distances. Such a pipe, or channel, must span distances so great that it can reach faraway capitols so that the information it carries reaches foreign leaders. As discussed in the previous chapter, the media of today certainly does reach virtually all world capitals, but media with such global reach has not always existed. There has been significant variation in the presence, reach and scope of the media over the past two centuries (Standage 1998; Starr 2004).

The channel connecting disparate parts of the world is an important but relatively straightforward element of this picture. But the news media is more than just a telegraph line or radio signal passively transmitting information. The news media also functions to gather and distribute particular information (Starr 2004). It is the information transmitted over the channel, importantly, which must exert the influence within this causal model. In particular, reports of domestic debates, which are discussed next.

3.2.2 Transmitting reports of *domestic debates*

To support the claim of aid and comfort, the media must be more than just a pipe or a channel. It must have the capacity to gather insight into the domestic debate that takes place surrounding foreign policy and wars. The empirical record shows that the first newspaper (in 1605) gathered and reported news of political matters and thus began the process of opening up the public sphere (McLuhan 1964; Weber 2008). In time, reports of domestic debates regarding foreign policy matters were gathered and published on a routine basis (Boyce, Curran, and Wingate 1978; Desmond 1937; Stephens 1988). By the time of the Crimean War, the capacity of the newspaper enterprise in Great Britain had grown to the point that it could bring to the public first-hand accounts of battles, and even commentary on the conduct of the war by the British officer corps (Desmond 1978). Such reporting and commentary elicited public response from both the incumbent administration and the loyal opposition. The performance of the British press surrounding the Crimean War is exemplary of a growing capacity of the media to draw out and report the contrasting policy positions and interests of various elite actors and the public.

It is not enough to note episodes of the media demonstrating the capacity to gather and report the public debate. In order to support the claim of aid and comfort to the enemy on an

ongoing basis, there must be evidence of a sustained, systematic advance in the capacity of the media to do so (Desmond 1978). The media must demonstrate a vested interest first, in gathering and reporting the domestic debate in general and, second, in covering foreign policy in particular. The overall economic incentives surrounding the media appear to satisfy the first requirement. As distinct from the book publishing business, the advertising model supporting newspapers demands a fresh supply of news in order to sustain demand and revenue (Starr 2004). The empirical record of the media over the past two centuries demonstrates ample incentive regarding the second requirement. The media has consistently found in practice that coverage of foreign policy and wars generates readership and advertising revenue. The media has clear inherent incentives to exercise and further develop its capacity to gather and report insights into domestic debates of foreign policy (Boyce, Curran, and Wingate 1978). But beyond the debates themselves, the sources of the debates – democratic institutions – are themselves also important and are considered next.

3.2.3 Generated by *democratic institutions*

The domestic debates transmitted to the enemy by the media have their origins in the democratic institutions[12] of society. Government leaders, opposition political parties, opinion leaders, scholars, elites and the general public all participate to varying degrees in the discussion. These many interested parties may or may not all share the same points of view regarding the choice of foreign policy. The differing interests of the various actors fuel the debate. And, the fact that there are multiple competing perspectives has a very important implication in the context of this

[12] This examination of the influence of the media necessarily conceives of the media as separate and distinct from the other democratic institutions within society.

dissertation. Competition among the many interests sends a confirming signal to the enemy (Milgrom 1986; Schultz 1998) because competing interests are less likely to collude in formulation of their messages. Whether or not the political opposition agrees with the leader's policy, the very existence of the opposition tends to moderate the leader's behavior (Baum 2004; Partell and Palmer 1999).

The reports of domestic debates transmitted to the enemy are important because they have the potential to influence enemy beliefs. Enemy beliefs are examined next.

3.2.4 Affecting *enemy beliefs*

The domestic debates generated by democratic institutions and transmitted to the enemy by the media are important because they have the potential to affect enemy beliefs. The bargaining perspective on international war suggests that the enemy is driven by the imperative to understand the cost sensitivity of the opponent (Filson and Werner 2002; Powell 2004; Slantchev 2004). As discussed above, this is the case because the parties to a war understand that political costs can be an important factor in their opponent's resolve surrounding a foreign policy issue. And, because the debates have their origins within the domestic competition among the government leader, opposition political parties and the media, they are interpreted by the enemy as being more credible (Baum 2004; Schultz 2001; Slantchev 2006). And, in the context of the strategic interaction of war, the enemy beliefs in turn affect behavior. The strategic interaction is considered next.

3.2.5 In the context of *strategic interaction*

All of the elements outlined here – an information channel, domestic debates, democratic institutions, and enemy beliefs – exist within the context of strategic interaction. The strategic interaction takes place both on the domestic level and the international level. As shown by Schultz, the competitive interaction with opposition parties helps the government leader send more credible signals of resolve to the foreign leader (Schultz 1998). These more credible signals of resolve help the leaders overcome the information problem inherent in war (Schultz 1999; Slantchev 2004). And, as Fearon argues, the ability to send credible signals contributes to the superior record of democracies in war (Fearon 1994b).

But the relationship between the media and the government leader is also competitive in nature. And, similar to opposition parties, the media therefore imposes constraints on the actions and threats the government leader undertakes. These constraints, in turn, enhance the credibility assigned to the government leader's signals of resolve by the foreign leader, and thereby influence the outcome of wars.

Thus, the elements outlined above - an *information channel to the enemy* carrying information about *domestic debates* that is generated by *democratic institutions, affecting enemy beliefs* in the context of *strategic interaction* – form a causal model through which the presence of the international news media is theorized to influence the outcome of wars. Most of the elements of the causal model are supported by the existing literature. However, the existing literature fails for the most part to include the media. The next section touches on those elements that are drawn from the existing literature and then goes on to discuss the novel media elements.

3.3 THE NOVEL ELEMENTS OF THE CAUSAL MODEL

Most of the elements of the above causal model are drawn from well-established literature reviewed in the prior chapter. Briefly, it is relatively well established that information contained in domestic debates provides an indication of a leader's cost sensitivity. The democratic institutions that are the source of the debates constrain leaders and impose audience costs. In turn, enemy perceptions of constraints and audience costs contribute to enemy beliefs about the credibility of government threats and actions. And, finally, these beliefs influence behavior. As each of these elements plays out within the context of strategic interactions – domestically and internationally – they influence outcomes. These elements of the causal model are relatively well-established in the existing literature. Those elements of the causal model that are introduced in this dissertation are considered next.

Several novel elements are proposed in this dissertation which must be theoretically justified and empirically tested. The information generated by domestic institutions is assumed in the existing literature to be available for consumption by the enemy. The enemy simply 'overhears' the domestic debate (Schultz 1998, p. 832). But the literature fails to consider the distinct influence of an information ('news') gathering mechanism and an information transmission ('reporting') channel, separate and apart from the influence of 'democratic institutions.' While it may be reasonable to conceive of the news media as part of the construct of 'democratic institutions,' it is also reasonable to consider the role played by the media as distinct from democratic institutions. The media should be distinguished from other institutions for two reasons: first, the charge of 'aid and comfort to the enemy' specifically implicates the media, not just 'democratic institutions'; second, the media has emerged through history in its own way and its own pace, in parallel with, but distinct from, the emergence of democracy. In

order to examine the charge of 'aid and comfort,' and in order to examine the distinct influence of the media (and thereby more clearly understand the influence of democracy), it is essential to treat the news media as separate and distinct from other institutions. The next novel element of the causal model – the relationship between the media and the government – is considered next.

The existing literature fails to consider how the media's adversarial relationship with the government contributes to government credibility. The nature of the media relationship is analogous to the relationship between opposition political parties and the government leader, with analogous influence. Schultz and others demonstrate how the presence of distinct political opposition and a domestic political audience influence the behavior of the government leader (Baum 2004; Baum and Potter 2008; Schultz 1998; Slantchev 2006). Namely, the presence of the political opposition constrains democratic leaders in terms of the threats and actions they undertake; and, in the context of a strategic interaction, this in turn influences enemy beliefs and behavior. Schultz develops this argument using a formal model that is based on three assumptions about the political opposition. First, that the opposition party [is self-interested in that it] seeks to hold office and conducts itself accordingly; Second, the opposition is assumed to have access to inside information regarding foreign policy, owing to having previously held power; Third, a competition for power between the incumbent and opposition parties takes place in public such that it can be observed by the foreign leader. Each of these assumptions is equally relevant to the news media: first, it is self-interested and therefore unlikely to collude with the government in the crafting of messages; second, it has access to information in part because both incumbent and opposition politicians maintain contact with the media for their own self-interested reasons; third, its adversarial relationship with the incumbent leader takes place in public. Thus, short of developing a formal model specifically to examine the influence of the

media in the strategic interaction between government leaders and the political opposition or between government leaders and foreign leaders, it is reasonable to rely on the analogous findings from Schultz (1998).

Therefore, treating the media as an entity separate and distinct from other democratic institutions, it is reasonable to expect that the presence of the media both constrains the actions and threats undertaken by the government leader and contributes to the enemy interpreting government signals of resolve as being more credible.

3.4 THE THEORY ADVANCED IN THIS DISSERTATION

Bargaining models of war have been successfully used to show how a series of battles and negotiating moves serve to reveal information about each side in order to reduce uncertainty about relative strength and cost sensitivity. The information revealed in turn affects each side's beliefs and ultimately the decisions made during successive moves. Each side must conserve scarce resources while carefully choosing battlefield and negotiating moves designed to reveal the adversary's strength and cost sensitivity while revealing as little about one's own side as possible. The theory advanced here argues that the international news media is an alternative channel for discovering information about relative cost sensitivity.

It is certainly true that foreign adversaries have always had ways to gather insight into domestic debates. Since ancient times, anecdotal evidence suggests that leaders employ both diplomatic and commercial espionage to gather insights into the enemy. While much espionage may be directed at discovering sources of strength, strategies, and so forth, the record also

reflects that leaders are interested and seek out information about cost sensitivity or resolve. The emergence of the news media over the past two centuries represents an important development.

Domestic leaders enjoy a natural advantage in understanding the level of support for their policies among their own public, as compared to faraway foreign leaders trying to gain such insight. Domestic leaders have access to information about public opinion from a wide variety of sources. They are physically located in the midst of society and have regular interaction with the public and with political elites. All of these interactions provide domestic leaders many channels of information for understanding the level of domestic public support for, or opposition to, the foreign policies and wars they pursue. The challenge, as suggested by bargaining theories of war, is for leaders to credibly communicate to foreign leaders their preferences and cost sensitivity regarding particular foreign policy matters.

In the example above, State B leader has many channels of information for obtaining information about the level of public support and opposition among State B public. State A leader, by contrast, has relatively few channels for obtaining information about the level of support for State B leader's policies among the State B public. Historically, channels for State A leader to gain insight into State B public opinion have been limited to intelligence gathering associated with State A's diplomatic mission to State B or State A's commercial activities taking place within State B. The emergence of the international news media represents a significant additional channel whereby a foreign leader can gain insights into the domestic political support enjoyed by an adversary.

The fact that the media has a competitive, strategic, relationship with government leaders has important implications for the particular influence of the media. As argued in the literature, democratic institutions generate information about political costs and have an influence on both

domestic and foreign leaders. But the news media is a separate and distinct element in the causal chain. And the existence of the media should shed light on the distinct influence of the democratic institutions themselves. In summary, the argument advanced in this paper is this: The international news media is an important alternative channel for revealing information about cost sensitivity and thereby influencing the outcome of wars.

It is useful before proceeding to consider an example from history that illustrates the role of the media.

3.5 ILLUSTRATION

An episode from the historical record illustrates how the international news media functions as an alternative channel for revealing information about cost sensitivity. The Russo-Japanese war of 1904-1905 featured military campaigns wherein Russia suffered significant losses but was far from totally defeated (Walder 1974; Warner and Warner 1974; White 1964). As is typical of most wars, inquiries through private diplomatic channels were undertaken to determine the interest in peace negotiations and the acceptable terms. But at the same time, prominent media outlets published reports about the level of support among elites and the public for continued fighting or for peace negotiations. These news reports were frequently distributed to readers in foreign capitals. Given the availability of this information, the domestic political support enjoyed by leaders for a given course of action could be partially observed by the enemy. This, in turn, enabled leaders to better assess the cost sensitivity or resolve of enemy leaders for continued fighting. Based on their updated beliefs about relative strength and resolve as a result of the

information from the media, negotiating channels, and the battlefield, the leaders of Russia ultimately chose to engage the peace process with terms that were favorable to Japan.

The Russo-Japanese war was closely monitored by both the news media and military observers from every major power. The continuing quest by the news media to gather the latest news is illustrated in this campaign in the use of the wireless ship Haimun by *The Times of London (Walder 1974)*. This was the first instance of a boat dedicated to entering active war zones to gather and transmit news reports wirelessly. The operation was assailed at various times by both Russian and Japanese military officials who feared it would give away vital information about the position of troops or naval assets. By the time of this war, the prominent role of *The Times of London* was supplemented by the advent of *The New York Times* as another paper of record (Boyce, Curran, and Wingate 1978). The recent acquisition of possessions in the Pacific meant that the US press closely followed Asian developments. Both newspapers provide searchable archives of every issue and hence provide a reliable source of reporting about the Russo-Japanese War.

After negotiations with Russia in 1903 over the status of Manchuria and Korea proved futile, Japan initiated war with a surprise attack on the Russian garrison at Port Arthur in February 1904. By the end of 1904, Japan was able to occupy Korea and parts of Manchuria and destroy the Russian Pacific fleet during the siege of Port Arthur. In early 1905, the Russian commander surrendered Port Arthur to the Japanese.

Japan had inflicted significant costs on Russia's Army and Navy by New Year's Day 1905. *The Times of London* noted the significance for Japan: "Port Arthur is more than a fortress. In taking it the Japanese wipe out a bitter memory of unmerited defeat received ten years ago at the hands of the Triple Intervention" (White 1964, p. 187-188). But the Japanese progress so far

lacked “anything like the finality of a real victory” (White 1964, p. 185). The Japanese press reported this prevailing sentiment, and reminded readers that the war was by no means over, and more difficult fighting remained (White 1964, p. 188).

Japanese diplomats took careful note of how the Russian press reported the events of the war and the ensuing public debates. Foreign Minister Komura and Ambassador Hayashi maintained an active correspondence regarding the foreign press coverage prior to and during the war (Warner and Warner 1974; White 1964). On the one hand, the Russian newspaper *Novoe Vremya* equated the honor of the Army and the Port Arthur Garrison with the honor of the Russian people, and urged the Russian people to follow the example of General Stessel’s gallant defense and fight to complete exhaustion if necessary. On the other hand, the *Nasha Dni* and the *Nasha Zhizn* newspapers presented the opposition view that the recent events presented a favorable occasion for ending the war (White 1964). For his part, Lenin argued in *Vperiod* that it was the Russian aristocracy that had failed the Russian people and that the capitulation of Port Arthur is the prologue to the capitulation of tsarism (Naida 1955). In the immediate aftermath of Port Arthur, rumors that Russia was seeking peace reached such a level that the government in St. Petersburg was compelled to issue a semi-official statement reported in *The New York Times* of Mar 12, 1905:

> The defeat at Mukden is furnishing the European press with material for conjectures of peace pourparlers. It has been stated in all seriousness that the Russian Government has informed the French Government that it is the intention of the Emperor to engage in peace pourparlers. We are authorized to declare in the most categorical fashion that all statements to the effect that it is the intention of the Russian Government to open pourparlers with a view to the conclusion of peace are absolutely without foundation.

Russia suffered another setback at the Battle of Mukden in March, after which military action largely paused while the Russian Baltic fleet steamed toward Asia. During the interlude in fighting, the two sides continued to have the opportunity to take measure of one another's resolve for continuing. *The Times of London* published a report on March 15 1905 from its Tokio correspondent outlining peace terms demands that are being discussed in Japan, including territory and indemnity. And, despite the denial issued by St. Petersburg, *The New York Times* reported on March 24 1905 that a "peace move by Russia [is] said to be imminent" and that dispatches from behind Russian lines estimate that Russia may be unable to prevent Japanese occupation of Russia soil at Harbin without at least 200,000 reinforcements. It is noted that for such a report to have cleared Russian censors at the front it must be consistent with the view of commanders. These estimates, it was reported, "may account for his Majesty's [the Czar] increased disposition to listen to peace counsel and open negotiations before the Japanese establish themselves on Russian soil."

At the same time, Japanese commanders were aware of the weaknesses in their own position, having essentially reached the limits of their supply lines and any additional progress would require an expansion in the armed forces (Warner and Warner 1974). And they realized that "Russian defeats in South Manchuria would not be sufficient to induce capitulation on the part of a vast empire whose soil had not yet been touched by war" (White 1964, p. 202). During this period, Russia was constantly moving men and material eastward by rail while St. Petersburg made efforts to increase its transport capacity.

By late April 1905, with the fleet expected to arrive in Asia shortly, western diplomatic observers were reported by *The New York Times* on April 29 1905 as having expressed the view

that “whatever the results of the naval battle diplomats here [in Washington] believe the first real opportunity for the successful initiation of peace negotiations will come after it. The defeat of Russia’s fleet would, it is believed, give the Russian peace party renewed power, while even a partial victory for the Russians would have the effect of scaling Japan’s peace terms to what Russia would regard as a reasonable basis.” At the same time, speculation regarding Russia’s deteriorating financial condition began to appear in the western press, as exemplified by reports in *The Times of London* of May 27 1905. For its part, Japan had thus far managed to conceal her difficult financial position (White 1964, p. 202).

These reports in the press demonstrate that fissures in Russia’s resolve were publicly apparent in the months prior to the arrival of the Baltic fleet. Japan, meanwhile, appears in press reporting to be uniformly resolute.

The Baltic fleet reached the Sea of Japan in late May and was destroyed in its first encounter with the Japanese fleet in the Tsushima straits. Japan naturally reacted with joy at the same time western observers reacted with shock at the stunning Japanese victory. *The New York Times* reported on May 30 1905 that “Japan war bonds leaped” at the news of the victory.

The Times of London reported on June 1 1905 that Japan announced the expansion of conscription immediately following the naval battle, in a show of her intention to continue the fight even after such an important victory.

In Russia, only one newspaper, the pan-Slavist *Sviet*, urged resolve, arguing that “we are beaten on sea; what of it? Let us continue on land till we secure the victory” (Walder 1974, p. 38). In a survey of Russian reactions, *The Times of London* reported on June 1 1905 that other papers, including *Novoe Vremya, Slovo, Listok* and the *Gazeta* advocated peace.

In Japan, Foreign Minister Komura privately but formally requested Roosevelt's mediation, stipulating that he undertake mediation "entirely on his own motion and initiative," which was intended to avoid any appearance of eagerness for peace on the part of Japan (White 1964, p. 208).

Several war councils were reportedly held at Tsarskoe Selo in early June. *The Times of London* reports on June 7 1905 that "instructions were telegraphed this afternoon to the Russian Ambassadors in Washington and Paris to the effect that Russia is desirous of learning Japan's conditions of peace." This news report is consistent with the diplomatic record (Warner and Warner 1974; White 1964).

The Times of London reported on June 13 1905 that "Russia's reply to Roosevelt's Note sent by [Russian Minister of Foreign Affairs] Count Lamsdorff to [U.S. Ambassador] Mr. Meyer…merely acquiesces in the president's proposal and declares Russia's readiness to appoint a plenipotentiary."

As of the beginning of summer, Russia had not publicly exhibited a convincing resolve to continue to war, whereas Japan had announced expanded conscription, Japan's war bonds had appreciated, at the same time she had successfully hidden her role in initiating peace negotiations. As arrangements for peace negotiations are made, Japan continued to appear resolved to continue fighting.

Leaders of Japan's Constitutionalist opposition party and Progressive opposition party are reported in *The Times of London* of June 29 1905 as expressing partisan positions that the peace terms should be very demanding, including indemnity, territory, and restrictions on Russia's future actions in Asia.

Japan invaded Sakhalin Island on July 10, providing a reminder that Russia lacked a Pacific fleet (Walder 1974). In a private exchange, Roosevelt, concerned about Russia reneging on its commitment to the peace negotiation, had previously urged the Japanese to seize Sakhalin as a forceful demonstration of the military reality in Asia (Bishop 1926, p. 396). The occupation of Sakhalin proceeded while the Japanese and Russian diplomats made their way to Portsmouth for the negotiations. Japan maintained the threat of additional military action as an ongoing incentive for Russian participation in the negotiations, as reflected in an article in the *Jiji* on July 11 1905:

> "Tsushima in the south and Saghalien in the north form the natural challenge gates to the Sea of Japan and the possession in our hands of the one is as important as that of the other. Further, to make control of that northern gateway really secure in our hands, it is indispensible to hold the littoral country on the opposite continent. Then with the Mamiya Strat in our grasp, the blockade of Vladivostok will become a very effective undertaking" (White 1964, p. 224).

The published record in the U.S. and British press demonstrates that Japan exhibited consistent resolve prior to and during the organization of peace negotiations, despite her somewhat fragile military situation. At the same time, Japan actively monitored Russia's wavering resolve as represented by newspaper reports. Initially, Russia maintained indifference toward negotiations to end a war that had not yet reached Russian soil. But Russia eventually chose peace. The decision-making of Russia's leaders was undoubtedly influenced by a variety of factors, both international and domestic. The military events of 1905, the diplomacy on the part of the great powers, and Russia' own domestic political situation all likely weighed in the

decision. But it is reasonable to infer that the evident differences in public indicators of resolve between Russia and Japan can only have helped Russia conclude that peace was the prudent choice.

Before proceeding to outline the implications and hypotheses flowing from the theory, a number of potential weaknesses of the theory are considered.

3.6 POTENTIAL SHORTCOMINGS OF THE THEORY

3.6.1 Is transparency a good thing?

Several observers have argued that the increased transparency featured in the contemporary environment may not, in fact, help states overcome information problems. The outline of this criticism is that the multitude of signals sent by opposition parties, opinion leaders, prominent citizens, and other elites may overwhelm the enemy leader's ability to interpret them. In a critique of the bargaining literature, Rosato argues that "a lot of information is not always good information...simply because democracies provide a substantial amount of information about their intentions from a variety of sources does not mean that their opponents will focus on the appropriate information or that the information will be interpreted correctly" (Rosato 2003, p. 598). Similarly, others argue that transparency afforded by the modern media can complicate crises by mixing diplomatic signals with the complicated discourse of domestic politics, ultimately confusing foreign leaders as to which voices are authoritative. Finel (1999) examines this issue using a small number of cases studies and finds mixed support for the argument that transparency can be confusing. The small number of cases examined in that study leave

unanswered the broad question addressed by the current study, namely whether the news media appears to exert an influence on outcomes across wars. The existence of particular cases where transparency appears to interfere with credible signaling does not necessarily invalidate the overall argument of the current study. Ultimately, the findings of the current study should be compared with Finel's findings for areas of agreement and disagreement, and ultimately further research should attempt to identify the reasons for any such disagreements. The next critique of the theory advanced in this dissertation concerns the role of the particular content of news media reporting as distinct from the mere presence of the media and is discussed next.

3.6.2 The message…or the medium?

It is not unreasonable to assume that the international news media reporting on a state's domestic public opinion only advantages that state's adversary when it reports high levels of cost sensitivity. A cost-sensitive state whose unwillingness to sustain a fight over a given issue is well-known is certainly in a weaker bargaining position than a state whose level of cost sensitivity is unknown. That weaker bargaining position would, ceteris paribus, be expected to lead to worse outcomes, such as a reaching a draw rather than a victory or a loss rather than a draw. In fact, because war is a strategic interaction, both formal and informal analyses suggest that the mere presence of an alternate signal has an equally effective informing effect. Schultz' formal analysis was presented above but is briefly revisited here before using informal analysis to make a similar point.

A number of parallels exist between the presence of an alternate information channel and the presence of an opposition party. Schultz (1998) uses formal logic to demonstrate how in a strategic interaction, the presence within a state of an opposition party that meets certain

assumptions contributes to a higher probability of winning. This is the case because the opposition both constrains the government leader and makes policy position statements of its own which are interpreted by the enemy as confirming the government leader's statements. Together, these mechanisms make it easier for the state to more credibly reveal information about its own cost sensitivity or resolve. The results of the model are shown to hold regardless of whether the government policy is supported or opposed by the opposition political party.

The presence of the news media should have an influence that is analogous to the influence of an opposition party, provided the media meets the assumptions imposed by the model: incentives to compete with the government, access to relevant information, and competition with the government takes place in public. Each of these assumptions is plausibly valid and therefore, it is reasonable to conclude that it is the presence of the alternate channel of information, not the particular content of the channel that matters. An informal analysis of the media during a conflict is presented next that advances a similar point of view.

Consider two states, A and B, engaged in a war. All other things being equal, State A is trying to decide its strategy based on beliefs about State B's cost sensitivity. Formal models show that states engaged in a bargaining interaction such as war attempt to screen out more demanding opponents from less demanding ones in order to reach the most advantageous outcome possible. State A knows its own level of cost sensitivity, which for the purposes of this example can take one of three stylized states: remaining steady, increasing, or decreasing. Without insight into State B's cost sensitivity, State A would, *ceteris paribus,* base its strategy on its own level of cost sensitivity, leading to the strategies shown in Column I of Table 3-1. In the case that State A finds its level of cost sensitivity decreasing, it would be expected to adopt a demanding negotiating stance and extend the fight to maximize gains. If, on the other hand, State

A were aware that its own cost sensitivity was increasing, it would adopt a less demanding negotiating stance and seek an early settlement to the conflict to minimize the possibility of losses. Finally, if State A's cost sensitivity appeared steady, it would chart a middle negotiating stance and proceed based primarily on other factors.

If State A is able to gain insight into State B's level of cost sensitivity, it would be expected to factor that information into its choice of strategy. Letting State B's cost sensitivity take one of the same three stylized states, the choice of State A's strategy given this information is shown in column II of Table 3-1. In several cases, the knowledge about State B's cost sensitivity would logically lead to a different choice of strategy than what State A would choose without such insight. Consider the situation where State A is aware that its own cost sensitivity is steady. If it additionally knew that State B's cost sensitivity were increasing, it might adopt a more demanding stance, recognizing that a more protracted contest could play to its advantage as State A loses the will to continue. On the other hand, if State A were aware that State B's cost sensitivity were decreasing, it might choose to reach a settlement earlier. The intersection of three stylized types of cost sensitivity for each of the two states yields a possible 9 combinations. In four of these nine combinations (shaded in Table 3-1), the additional insight into State B's cost sensitivity enables State A to make a better decision regarding strategy than it would without the information. Note that regardless of whether the additional information reveals that State B

Table 3 - 1. State A Strategy with and without insight about State B cost sensitivity (Maxwell 2010)

		(Column I) Without Insight About State B Cost Sensitivity	(Column II) With Insight About State B Cost Sensitivity:		
			State B cost sensitivity increasing	State B cost sensitivity steady	State B cost sensitivity decreasing
State A Private Information	State A cost sensitivity decreasing	Extend fight for maximum gains	Extend fight for maximum gains	Extend fight for maximum gains	Avoid prolonging the fight (seek Quick Win versus protracted draw or quick Draw versus protracted Loss)
	State A cost sensitivity steady	Sustain the fight	Prolong fight for maximum gains (seek protracted Win versus premature Draw)	Sustain the fight	Settle as soon as possible to minimize losses (seek quick Draw vs. protracted Loss)
	State A cost sensitivity increasing	Settle as soon as possible to minimize losses	Prolonging the fight is not necessarily bad (seek protracted Draw versus premature Loss)	Settle as soon as possible to minimize losses	Settle as soon as possible to minimize losses

is increasingly or decreasingly cost sensitive, it is to State A's advantage to have this insight. State A can drive toward a better outcome given the additional information, even if the information reveals it is facing a tough opponent.

This informal analysis suggests that regardless of what information is learned about State B's cost sensitivity, State A can always make a better decision with the information than without. The difference between having and not having the information is clear in the four shaded scenarios. If State A is steadily or decreasingly cost sensitive and it learns that State B is decreasingly cost sensitive, then it learns the importance of reaching the best possible settlement

as quickly as possible, before State B becomes a more demanding negotiator. If State A is steadily or increasingly cost sensitive and it learns that State B is increasingly cost sensitive, then it learns the opportunity in prolonging the contest in anticipation of State B becoming a less demanding negotiator.

In summary, both formal and informal analyses suggest that the presence of an additional channel exerts an influence independent of the particular content of the signal, as long as the channel meets important assumptions. The media appears to meet those assumptions and therefore it appears reasonable to expect that the presence of the media should have an influence on war outcomes independent of the content of the news reports.

Neither of the potential shortcomings examined in this section significantly alters the theory. Therefore, the analysis can therefore proceed toward testing. The next section outlines the observable implications of the theory.

3.7 OBSERVABLE IMPLICATIONS OF THE THEORY

The media should influence outcomes, controlling for other variables

As an alternate channel for credibly revealing information about cost sensitivity, the presence of the media should influence the strategic interactions within war and ultimately the outcomes of wars. Of course, the influence of the media takes place within the context of other factors known to influence wars. The influence of the media must therefore be observed while controlling for other variables.

The influence of the media should vary with the phases of the media's development

Literature describing the emergence of the media argues that with each successive phase of media development, new norms emerged regarding how society, leaders and the media reciprocally engaged. At the very beginning of the media's emergence, the public sphere did not exist and it was considered vulgar for ordinary citizens to discuss affairs of the state (McLuhan 1964). The transformation of the media role to that of the contemporary environment occurred not in a smooth progression, but rather through a series of phases. As each new type of media appears, society, leaders and the media all adjust behavior until a new set of norms emerges which shape the role of the media. For example, the pre-universal newspaper differs in important ways from the universal newspaper, not the least of which is that the latter is driven by a subscription- and advertising-based business model. The economic incentives underlying the universal newspaper contribute to a much more active and engaged press, and a reciprocally much more engaged citizenry as the habit of daily consumption of news takes hold. Similar discontinuities in the forms of reciprocal engagement among the press, leaders and the people occur with each successive phase of the media's emergence.

In general, each successive phase of the media features increased speed of newsgathering and reporting. In addition, each successive phase features richer reporting as the style of the media changes and the amount of information reported with each dispatch increases. At the advent of the telegraph, the novel 'telegraph dispatch' became a standard feature on the front page of most major newspapers. This contributed to increased circulation and popular engagement with foreign news. However, the expense and poor reliability of the new technology meant that such dispatches were limited to a few lines. In contrast, within two decades, telegraph lines circled the globe, giving multiple paths for news to travel in the event any particular line

failed. And, importantly, the costs of transmission fell dramatically such that stories from abroad could run to multiple pages, featuring multiple correspondents and perspectives (Desmond 1937).

The role of the media and hence its influence on leader's beliefs and behavior should be expected to vary as the speed of media increases and the type of media advances.

Influence of media independence

The informing mechanism carried out by the media depends on the level of media independence from state control. No credible signaling is possible if the information channel gathering and reporting the news lacks independence. Lacking independence, media reporting becomes indistinguishable from statements issued directly by government leaders. Therefore, such reports would neither constrain the government leader, nor send a confirming signal to the foreign leader.

While state controls on media are a component of regime type, the literature on the emergence of the media shows an important distinction between *de jure* and *de facto* press independence (Khazen 1999). Statutory press freedoms do not necessarily correspond to press freedoms in practice. The difference between the two is in the actual behavior of the media, which the empirical record shows does not immediately act on reduced press censorship. Rather, in many instances the media fails to actively challenge government policies despite *de jure* press freedoms. The norms of an independent press emerge slowly and may lag changes in the regulatory environment. And recall that the informing mechanism depends on the press visibly competing with the government leader. Therefore, it is important to distinguish the regime type of any given state from the observed level of media independence.

Given that media independence is distinct from regime type, variations in media independence across states is expected to contribute to variations in war outcomes. Specifically, the credible signaling mechanism suggests that states with less media independence should have less success due to their comparative inability to send credible signals.

Media exerts influence distinct from influence of regime type

As discussed above, the news media complements the credible signaling function of democratic institutions. Since the media emerges over time and geography in a manner that is distinct from the emergence of democracy, the unique influence of each on war outcomes should be discernable. And, it should be apparent that regime type modifies the influence of the media on war outcomes.

Therefore, controlling for media, the theory suggests there should be variation in the performance of democracies versus non-democracies in war. Similarly, controlling for regime type, there should be variation with type of media and phase of the media's emergence.

Media exerts a differential influence on targets as compared to initiators

The news media should have a different influence on war targets compared to war initiators, because the role of information is thought to be different for each. Bargaining models of war suggest that because domestic audiences react differently to being attacked than to leaders choosing to initiate a war, their role in generating audience costs is different (Baum 2002; Lai and Reiter 1948). Because domestic audiences tend to rally behind the leader when attacked, the credible signaling function of the domestic audience and domestic political institutions is less important in targets than initiators (Powell 2004; Reiter and Stam 2003; Schultz 2001). And,

because the theory advanced in this paper draws on the same credible signaling mechanism, it is reasonable to expect that the media should have less influence on targets than on initiators.

Differential influence with time

The media may influence leaders' behavior and war outcomes both through mechanisms that unfold prior to wars and mechanisms that unfold during wars. In the first of these, the mere presence of the media can serve to *ex ante* constrain leaders' actions or threats because they are strategic actors who are aware of the media's informing function. In the first of these mechanisms, the domestic leader is constrained by cost sensitivity and therefore only makes threats selectively, and the foreign leader understands this and therefore interprets the domestic leader's threats as being more credible. In the second of these, the information transmitted by the media in the context of a specific crisis can serve to reveal changing information about leaders' cost sensitivity regarding that specific crisis. While the first of these mechanisms has no influence once a conflict is underway, the second of these by its nature exerts its influence over time, as follows. At the outset of a foreign policy crisis or war, there is a gap between the information known by the domestic leader and the public. Over time, debates within democratic institutions take place and are reported by the media. The media reporting gradually narrows the gap between what is known by the leader and what is known by the general public. Similarly, the gap between the domestic leader's knowledge and the foreign leader's knowledge narrows as news reports arrive, in parallel with the bargaining and fighting that comprise the war (Baum and Potter 2008). In this way, the informing role of the media should change with the duration of a war. To the extent that the news media exerts its influence as wars unfold, the theorized influence of the media on war outcomes is expected to be modified by the passage of time as war duration increases.

The observable implications of the theory suggest a series of hypotheses which are tested in later chapters. The hypotheses are presented next.

3.8 HYPOTHESES

Testable hypotheses are developed by drawing on the Research Questions presented on page 11 in section 1.4 and the observable implications of the theory presented above. Ten hypotheses are presented here, grouped by the Research Question to which they respond:

Main Research Question: To what extent does the international news media influence the outcomes of interstate wars?

As an alternate channel via which leaders can send credible signals, the news media should have an influence on the outcome of international wars. In this broadest sense, the presence of the international news media should influence the outcome of wars, controlling for other factors known to have influence. Stated another way, the unexplained variance in existing models of war outcomes should be addressed by the inclusion of variables representing the media.

The credible signaling mechanism theorized above should provide advantage corresponding to the level of media present in any given state. States with more advanced media should enjoy a relative advantage; states with less advanced media should suffer a relative disadvantage. This leads to hypotheses H1 through H6, which are discussed next.

As the media emerges through a series of media types (pre-universal newspaper, universal newspaper, press agencies, radio, broadcast television), the public sphere enlarges. The

norms of public engagement emerge as well, enhancing the ability of leaders to send credible signals. H1 and H2 address the influence of the media as the media type advances:

H1: Probability of winning should increase as a state's media type advances.

H2: Probability of losing should decrease as a state's media type advances.

The theorized influence of the media depends on the independence of the media from state control. Therefore, states with more independent media should be expected to enjoy relatively greater success than states with less independent media. H3 and H4 address the influence of media independence on the outcome of wars:

H3: Probability of winning should increase as a state's media becomes more independent.

H4: Probability of losing should decrease as a state's media becomes more independent.

As the media emerges, the speed at which news is gathered and reported increases, owing to changes in the practices of media enterprises made possible by advances in telecommunication technology. While the theory advanced above is silent regarding the role of media speed, it is reasonable to assume that the increasing speed of the media should complement the influence of media type as it advances. H11 and H12 address the influence of the media as media speed increases:

H5: Probability of winning should increase as a state's media speed increases.

H6: Probability of losing should decrease as a state's media speed increases.

Sub-Question 1: To what extent is the influence of the international news media modified by regime type?

The theory advanced in this paper argues that the media exerts an influence on wars that is distinct from the influence of democratic institutions. In order to examine this part of the theory, it is important to examine the influence of the media in the context of regime type. H7 addresses the potential confounding influence of regime type on the theorized influence of the media.

Hypothesis H7: The influence of the media on the probability of winning should increase under a democratic regime.

Sub-Question 2: To what extent does the international news media differentially influence war initiators and targets?

The theorized credible signaling mechanism of the media has a different relevance for war initiator states than for targeted states. Specifically, when a state is attacked, the public generally rallies around the leader, which makes audience costs a less reliable indicator of resolve. Therefore, while the probability of winning is expected to increase for initiator states with more advanced media, the probability of target states winning is not expected to be affected. H8 and H9 address the influence of the media on initiator states and target states:

H8: Probability of winning should vary with type of media for initiator states

H9: Probability of winning should not vary with type of media for target states

Sub-Question 3: To what extent is the influence of the international news media modified by war duration?

The theorized influence of the media on war outcomes is expected to vary with the duration of wars. Within the time required for the gap between the leader's knowledge and the

public's knowledge to narrow, the theorized credible signaling mechanism cannot function. Therefore, the media is expected to have comparatively less influence on shorter wars and more influence on longer wars. H10 addresses the interaction between the influence of media and the duration of wars:

> H10: Influence of media on probability of winning should increase as war duration increases.

3.9 CHAPTER SUMMARY: THEORY

In this chapter a theory has been developed explaining how the international news media functions as an alternative channel for discovering information about relative cost sensitivity, thereby influencing the outcome of wars. Drawing on existing literature, the elements necessary to support a claim of 'aid and comfort to the enemy' are examined. These elements are linked to form a causal model. The causal model suggests a series of observable implications of the theory, which in turn lead to a set of testable hypotheses. The next chapter presents a research design and set of methods for evaluating the hypotheses.

4.0 RESEARCH DESIGN AND METHODS

4.1 CHAPTER INTRODUCTION

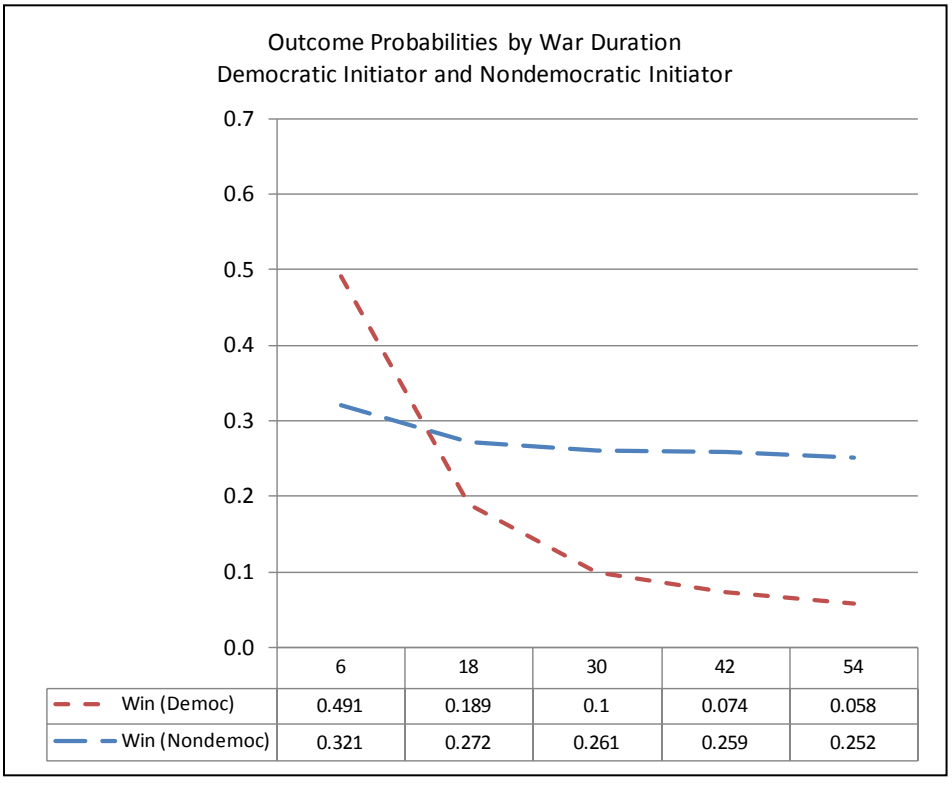
This chapter presents the research design and methods used to evaluate the theory. First, a conceptual model that operationalizes the theory is presented. A research design based on the conceptual model is presented next. The research design section describes the basic elements (population of cases, unit of analysis, dependent variable, and independent variables) of the design as well as the methods for collecting the data. The analysis section describes the tools and methods used to perform both the statistical and the substantive analysis of the data. The chapter concludes by examining threats to reliability and validity and their implications for the study.

4.2 CONCEPTUAL MODEL

The theorized influence of an additional channel of information on the parties' decisions plays out over time, in the series of interactions that comprise war. In order to examine these processes, a model that examines outcomes of wars must be used. An attrition model of war that examines both outcomes and duration - based on Gartner and Siverson (1996) – is well-suited to this purpose. The outlines of such a model are presented here.

The ultimate outcome of any war is reached with the parties arriving at consensus about relative capabilities and relative cost sensitivity. In each period during a conflict, the players mutually choose one of four outcomes: initiator wins, initiator loses, the players mutually choose a draw or the players mutually choose to continue fighting. Each player makes these decisions based in part on an evolving estimate of their adversary's capabilities and cost sensitivity.

The relative capabilities and cost sensitivity of different types of actors will be reflected in the proportion of the four outcomes they achieve over the duration of wars. To illustrate, the use of a similar model by Bennett and Stam (1998) is briefly presented in Figure 4-1. Their model shows that democracies between 1816 and 1992 tend to win shorter wars but that as the duration of wars increases, the advantage passes to autocracies.



	6	18	30	42	54
Win (Democ)	0.491	0.189	0.1	0.074	0.058
Win (Nondemoc)	0.321	0.272	0.261	0.259	0.252

Figure 4 - 1 Predicted Outcome Probabilities By War Duration (Bennett & Stam 1998)

Bennett and Stam (1998) use their model to highlight the difference between democracies' and non-democracies' chances of victory, which they attribute to democracies' higher ability to generate audience costs and thereby send credible signals to opponents. Their study is consistent with most studies of the democratic peace in that they attribute the signaling mechanism to democratic institutions and they do not examine how the performance of democracies in war varies with the emergence of the international news media. But their model can, with the addition of several variables, be extended to examine the implications of the emergence of the international news media.

4.3 CONNECTING THEORY TO CONCEPTUAL MODEL

It is useful at this point to briefly examine the overall conceptual relationship among independent variables and war outcomes in the conventional model of war presented in Bennett & Stam (1998) as a prelude to situating the theory advanced in this dissertation within that.

Figure 4-2 graphically presents the relationships encompassed by Bennett & Stam's model of war outcomes. There are several causal paths in their model. First, a block of material, or 'realist' variables such as balance of forces, terrain, the element of surprise, etc., have a direct

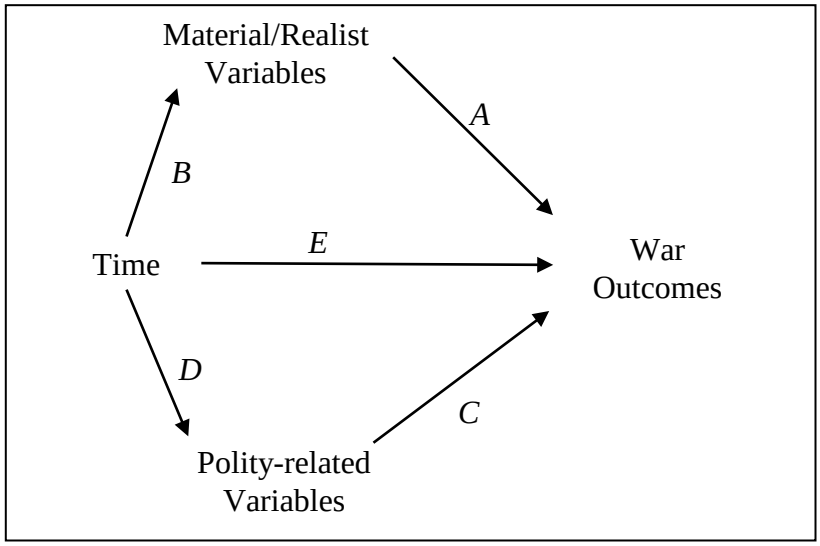


Figure 4 - 2. Conceptual Relationships Between Independent Variables And War Outcomes -Conventional Model (Bennett & Stam 1998)

influence on war outcomes, shown as segment *A*. But time modifies the influence of the realist variables, as indicated by segment *B*. Similarly, polity-related variables such as regime type, level of repression, etc. have a main effect on war outcomes, as indicated by segment *C*. Time also interacts with the polity-related variables to modify their influence on war outcomes, as indicated by segment *D*. And, finally, time exerts a direct influence on war outcomes, as represented by segment *E*. Note that because all wars in the dataset are coded as dyadic conflicts, each of the realist and polity variables is coded for both the initiator of the war and the target of the war. To simplify the diagram in Figure 4-2, the initiator and target variables are lumped together, although their distinct influence is retained in the actual process of model development.

This conceptual model of the main-effects and interaction-effects influences the variables have on war outcomes will guide the development of the statistical models used to evaluate the theory advanced in this paper. It is useful at this point to use a similar graphical approach to examine the conceptual model underlying the theory advanced in this paper. Figure 4-3 graphically presents those relationships.

In Figure 4-3, the media variables are situated within the context of the blocks of realist, polity and time variables that are included in the previous diagram. The block of media variables has a direct influence on war outcomes, as indicated by segment *F*. But time interacts with the media variables, as indicated by segment *G,* to modify the influence of the media on war outcomes. Similarly, the polity variables interact with the media variables, as indicated by segment *H,* to also modify the influence of the media on war outcomes. As with the first

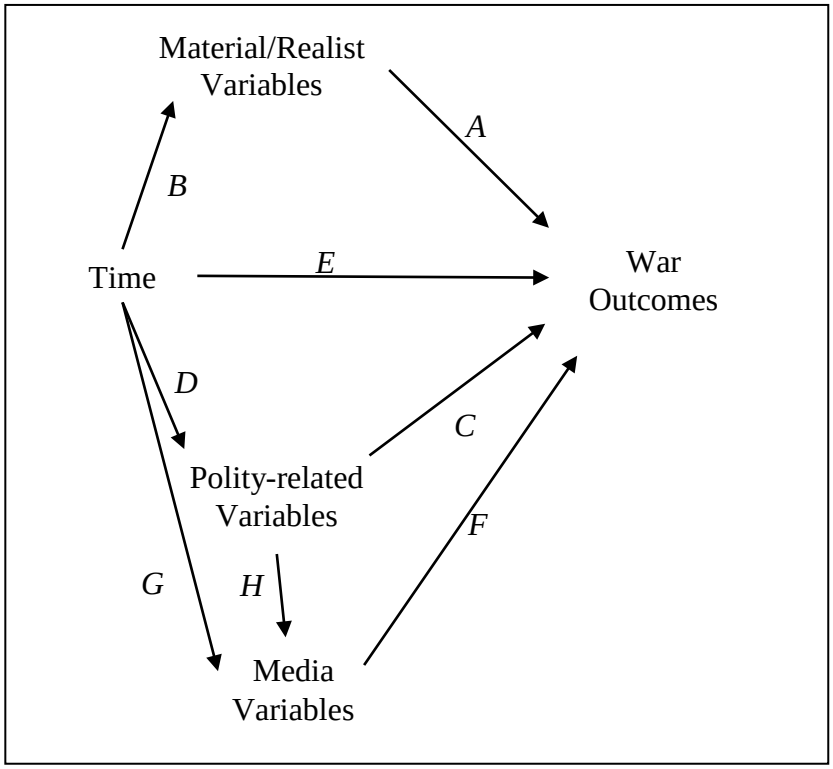


Figure 4 - 3. Conceptual Relationships Between Independent Variables And War Outcomes -Conventional Model Plus Media. (Maxwell 2010)

diagram, Figure 4-3 is a simplified representation in that it lumps the media variables for the war initiator together with the media variables for the target state. However, in the actual process of model development, the distinct roles of the media in the initiator and in the target are individually considered. The conceptual model in Figure 4-3 clarifies how variable main effects and interaction effects are expected to contribute to a model of war outcomes, based on the theory advanced in Chapter 3.

Model development is presented in Appendix B. At each stage of model development, variables are selected for inclusion based on theory and on their contributions to the strength of the model. The process proceeds in an iterative fashion, adding and removing variables, assessing the fit of the model, and so on until a suitable model is arrived at. The research perspective of this dissertation is presented next.

4.4 RESEARCH PERSPECTIVE

This dissertation adopts a positivist perspective in that it seeks to explain and predict the influence of the international news media on the outcomes of wars. Various perspectives including post-positivism, constructivism, and so forth are excluded. The positivist perspective adopted here necessarily limits the scope of the study in that it assumes that the empirical record must be observed and measured and cannot be subject to interpretation by the analyst. Issues such as the existence of a reality separate and distinct from our observations and the fallibility of the analyst are explicitly not addressed by the chosen research perspective. The discussion proceeds to research design next.

4.5 RESEARCH DESIGN

This dissertation employs a deductive method of reasoning. Drawing together strands from several bodies of theory, a series of hypotheses is generated which are then tested against observations gathered from the empirical record. Specifically, a statistical model is employed to examine the empirical record for evidence of the influence of the international news media on outcomes of wars. The analysis proceeds by building on appropriate existing datasets and methods for analysis. In order to enhance comparability with previously published research, the analysis performed here extends studies by Reiter and Stam (2002), Bennett and Stam (1998) and Gartner and Siverson (1996). Novel variables are developed to reflect the emergence of the international news media.

The theoretical model suggests the appropriate form for the dependent variable and the unit of analysis. The dependent variable consists of the four outcomes categories that are possible in each year: initiator wins, initiator loses, joint draw, joint decision to continue. Note that these four outcomes are not ordered – they are simply categorical. The use of a categorical dependent variable implies the use of a multinomial logit procedure. This procedure will generate a separate equation estimating the likelihood of each outcome. By themselves, these equations are not all that helpful. But within each time period, as the likelihood of one outcome rises, the likelihood of the other outcomes falls, which means that the results can be combined. The results of the three equations are integrated to arrive at a model that shows how the probability of each of the outcomes rises and falls as the independent variables vary (Gartner and Siverson 1996).

4.5.1 Unit of analysis

Many analyses within the literature define the war as the unit of analysis, but in this case, that is not appropriate. During each time period, the parties reach a joint decision to continue fighting or stop. Thus, each war eventually ends in one of three decisive outcomes – 'win', 'lose' or 'draw' – but until then the parties mutually agree on the intermediate outcome of 'continue.' Defining the unit of analysis as a war-year makes it possible to examine how changing conditions contribute to the eventual decision to end the war in one of the decisive outcomes.

Ideally, the unit of time would be as small as possible, but the availability of data dictates that the unit of time must be a year. Most available datasets in international relations contain data values that are measured annually. "Most scholars rely on annual data both because data are widely available at this level of temporal aggregation, and because the year represents a natural political break due to budget cycles, electoral cycles, and the presence of winter that in many areas hampers military action" (Bennett and Stam 2000, p. 4; Green, Soo Yeon, and Yoon 2001). Therefore, each war which crosses a year boundary is subdivided into multiple observations. For example, the single case of the Crimean War of 1853 – 1856 is represented in the dataset as a series of four observations, one for each year-end (1853, 1854 and 1855) plus one for the end of the war in March 1856. In this way, the variables surrounding the annual decisions of the parties to continue fighting, reach a settlement, etc. are captured in addition to the variables surrounding the decision-making that leads to the eventual termination of the war.

4.5.2 Population of cases

To enhance comparability with existing literature, the population of cases is based on the population used in Bennett & Stam (1996, 1998). This population consists of all interstate wars contained in the Correlates of War (COW) dataset(Singer 1978). Following Bennett & Stam, wars that involved coalitions or other combinations of belligerents are disaggregated into dyadic conflicts to facilitate analysis. An example of such disaggregation is the Second World War, which is coded as a series of very short dyadic conflicts between Germany and the various states it overran in 1939 through 1941, and a dyadic contest initiated by Great Britain against Germany in 1940 and a dyadic contest initiated by Germany against Russia in 1941. The involvement of the United States, France and the other Allies in the war effort are treated under this coding scheme as supporting the dyadic contests engaged by Great Britain and by Russia against Germany. Thus, each war is treated in the dataset as one or more war-years each of which consists of a dyadic contest between an initiator and a target.

In the current study 7 war-years were dropped from the analysis due to the unavailability of data regarding media for the target, the initiator, or both. These are:

- Columbia versus Ecuador in 1863 – No media data available.
- Germany versus Austria-Hungary in 1864 – No data available on this war. Suspect this war is miscoded in Bennett & Stam dataset.
- Yugoslavia versus Bulgaria in 1885 – No media data available.
- Somalia and Ethiopia in 1977-1978 – No media data available.
- Uganda and Tanzania in 1978-1979 – No media data available.

None of these cases appears to be particularly influential to the subject at hand and therefore their absence is not expected to substantially affect the findings. Dropping these cases yields a total population for this study of 193 observations. The population ultimately examined consists of 90 wars spanning 1823 through 1990. The wars vary in length from less than 1 year to over 12 years. A complete list of the population of cases is presented in Appendix A.

4.5.3 Dependent Variable

The dependent variable is war outcomes, as discussed above. The dependent variable is categorical and has four values corresponding to the four possible outcomes of a war in any given year: initiator win, initiator lose, mutual draw, mutual continue. Note that this set of values enables the model to distinguish between the two sides – the state that initiated the conflict and the state that was targeted in the conflict. This is potentially very valuable because the role of public opinion and cost sensitivity may be very different in a state that initiates a conflict and a state that is the target of conflict. Further, the conflict literature and bargaining models of war show that initiators and targets make very different calculations regarding the value of continued fighting. The value of the dependent variable is coded for each side for each year of each war following Bennett & Stam (1996).

4.5.4 Independent Variables

Independent Variables reflecting the emergence of the international news media

The literature on the international news media presented in section 2.4 beginning on page 32 guides the operationalization of the international news media construct. Four dimensions of the

media are important within the context of the theory advanced here: the availability of the media within one state to its adversary state, the type of media which predominates within each state, the independence of the media within each state, and the speed of the media within each state. Instruments are developed to measure and code each media variable for each side for each year of each war. The documentary record is drawn on: published examinations of the international news media in general; studies of the evolution of media technology including newsprint, telegraphy, radio and television; studies of media coverage of particular countries' foreign policy and war history; and, primary source evidence such as archived news accounts of particular wars. Before presenting the data collection procedures, the instruments used to measure each of the four dimensions of the media are presented next. Descriptive statistics for media variables and other variables used in this study are presented in Table 4-1 on page 104.

Media Availability

Media availability is coded as a dichotomous variable reflecting the availability of the news reports published within each state to leaders of the other state. Since the structure of the dependent variable distinguishes the initiator from the target state, media availability is separately coded for each state. That is, both the availability of the initiator state's media to the target state and the availability of the target state's media to the initiator state are coded. In most cases, each state's media is available to the other state (coded as "1"), but in certain rare instances one side or the other places an effective embargo on news which is coded as non-availability (coded as "0") (Herman and McChesney 1997).

Media Type

Literature on the emergence of the international news media demonstrates that in virtually every state, the media evolves through a series of distinct phases from the introduction of the first

newspapers to the eventual introduction of television. Each new type of mass media has brought to the public more information and analysis and reciprocally expanding norms of public engagement (Starr 2004). The additional information and expanding norms of public engagement make each successive type of mass media more valuable to an adversary in that it is capable of presenting a higher-resolution portrait of a society's domestic debate regarding foreign policy. In terms of the theory advanced here, each new type of media is expected to give an adversary more information on which to base an estimate of cost sensitivity.

Drawing on the media literature, the type of media predominant in the initiator state and in the target state each year is coded using a categorical variable. Categories used are: (1) pre-universal newspaper[13]; (2) universal newspaper[14]; (3) universal newspaper with international news agencies; (4) radio broadcasting; (5) television broadcasting.[15]

Level of Media Independence

The extent to which the media functions independent of the state (as opposed to being state-controlled or state-influenced), directly affects its ability to provide credible signaling. The media literature informs the definition of a variable reflecting the level of independence from the state enjoyed by the media in any given state. State regulations, norms and the practice of press freedom vary through time and by country, as illustrated by an example. The independence of the media in Russia during the Crimean war provides an illustration. At the outset of the war, the state under Czar Nicholas I tightly restricted press reports of the conflict. However, the

[13] The category of pre-universal newspaper includes private newspapers, non-commercial newspapers, and literary journals.

[14] Groth (1930) defines a universal newspaper as having seven characteristics: is regularly published, is printed mechanically, Is available to the public, has comprehensive and universal contents, has contents of general importance, has current information, and operates as an economic enterprise.

[15] Note that because the most recent wars included in the dataset conclude before the widespread adoption of satellite TV and the internet, these media types do not appear in this study.

ascendance of Alexander II in 1855 led to the great reforms of the 1860s. The first steps toward these reforms were taken almost immediately and in the summer of 1855 Russian newspapers obtained permission to publish news on the Crimean war (Read 1999). In 1856 the earliest foreign telegrams appeared in Russian newspapers, signifying further opening. But although news reports of the conflict were now permitted, the level of Russian media independence from the state contrasts sharply with that enjoyed by the British press. It was during the Crimean War that Howard Russell achieved renown by reporting critically on the British Army's performance for the Times. He was alternately praised for saving the situation and for being treasonous (Desmond 1978; Read 1999; Ruud 1982). There are no comparable examples of the Russian press using the newfound ability to report on the war to actually criticize the state. The Russian Press was initially tightly controlled before being given *de jure* independence from the state in 1855, publishing reports of the war, although not making a practice of criticizing the state. On the other hand, Russell's reporting for *The Times of London* shows that the British press was *de facto* independent of the state. Therefore it would be important to distinguish the level of independence exhibited by the Russian press – initially low and later *de jure* independence – from the *de facto* independence exhibited throughout the conflict by the British press.

Media independence is coded using a categorical variable as follows: (1) low media independence – essentially state controlled; (2) *de jure* media independence – nominally free press but norms and practice of criticizing state are only just emerging; (3) *de facto* media independence – legal guarantees of press freedom are accompanied by established practice of media criticizing state (Khazen 1999; Merrill, Gade, and Blevens 2001). As with media availability and media type, the level of media independence from the state is coded for each side for each year of each war.

Speed of Media

The theory suggests that the speed at which news reports of foreign policy events travel also affect their usefulness to an adversary. A long delay between events and news reports of those events makes those reports less useful for informing strategy and tactics. Contrast news reports that must travel across oceans on wind-powered vessels with those that are transmitted over radio while military action is underway. The former represents the 'first draft of history' whereas the second presents the opportunity to influence beliefs and decision-making regarding current military operations. The construct of the speed of the media within a state is coded as a scale variable with the units defined as the number of news dispatches possible per month. This is arrived at by inspection of the empirical record. First, the time (in days) required for a news dispatch to travel (given prevailing technology and practice) from the location of fighting to publication in the news media of the country's capital city is determined. Next, this figure is divided into thirty to yield dispatches per month. As with the other media variables, media speed is coded for each side for each year of each war.

Independent Variables from existing studies

Several important factors thought to influence war outcomes will be included as controls although they are not the focus here. These factors essentially comprise the accumulated wisdom of the field as to what influences the outcomes of wars, as of their date of publication (Bennett and Stam 1998; Reiter and Stam 2002). For the most part, these factors affect the rate or the amount of costs that a state can inflict on its opponent. Because these draw on well-established datasets (Bennett and Stam 1996), they are presented here with only a brief summary:

Initiator and Target Democracy

Description: Institutionalized democracy in both the initiator and the target state, measured on a 10-point scale.

Source: Polity IV database (Marshall and Jaggers 2003)

Time

Description: For each year, the number of months the war has been ongoing at the end of the fighting in that year.

Strategy and Doctrine

Description: Strategy plays a role in war outcomes (Epstein 1987; Mearsheimer 1983). Following Stam 1996, strategy is defined as the way a state uses its military forces in war – maneuver, attrition or punishment. Doctrine is distinct from strategy and represents a state's foreign policy goals and plans for attaining them – classified as either offensive or defensive.

Source: (Bennett and Stam 1996)

Terrain

Description: Terrain is known to affect the difficulty and speed with which forces can find and defeat the enemy. Rough terrain (mountains, jungles, etc.) makes it difficult to achieve quick victory whereas open terrain makes for quick battles and quick wars.

Source: Bennett and Stam 1998 (1998) codes terrain on a scale from 0 for open terrain to .75 for rough terrain.

Balance of capabilities

Description: Total forces on each side are computed using the COW national capabilities index. These values are discounted by the distance to the location of fighting to account for

diffusion, following Bueno de Mesquita (1981). The balance of forces is calculated by dividing each side's capabilities by the sum of both sides' capabilities.

Source: COW database (Singer 1978)

Initiator and target repression

Description: repressive states are more likely to be able to suppress mass dissent that could impede mobilization of forces. Measured based on the degree of political competition.

Source: (Marshall and Jaggers 2003)

Initiator and target salience

Description: The salience of the issue at hand should affect how hard each side fights for it. Conflicts involving survival, territory, unification, reputation and autonomy are coded as salient. Conflicts involving policy, empire, and trade are coded as nonsalient.

Source: Bennett and Stam (1998) based on Holsti's (1991) categorization of issues.

Distance between adversaries

Description: Distance between the initiator and the target may make it harder for the initiator to project power and win the conflict. Although national capabilities are discounted by distance, this additional variable directly incorporates the effects of distance.

Source: Bennett and Stam (1998)

Surprise

Description: Military surprise can help a state achieve victory by quickly imposing costs on the other side. This variable represents the difference in the proportion of military forces surprised between the two sides. The larger the value, the greater the advantage to the initiator.

Source: Bennett and Stam (1998).

Total military personnel and population

Description: States with more military personnel or larger populations are better able to sustain fighting and draw on additional resources.

Source: Bennett and Stam 1998 (Bennett and Stam 1998)

Table 4 - 1. Independent Variables Descriptive Statistics

Variable	Mean	N	Min	Max	Std Dev	Median
Variables from existing studies						
Balance of Forces	0.529747	193	0.052177	0.982875	0.276538	0.520278
Sum of Population	205919.8	193	1332	1219733	276097.6	82177.5
Rough Terrain	0.360704	193	0	0.75	0.209786	0.440241
Sum of Military Personnel	2828.401	193	4	22151.5	3848.141	1270
Strategy	1.92228	193	1	3	0.539262	2
Distance	1828.387	193	1	11084.8	2438.035	1100
Surprise	0.000361	193	-0.21104	0.299821	0.059447	0
Time	27.27446	193	0.03	148	31.40016	15
Initiator Democracy	2.465102	193	0	10	3.147161	0.468676
Target Democracy	2.69126	193	0	10	3.609233	1
Initiator Repression	3.781515	193	1	6	1.356271	4
Target Repression	3.363447	193	1	6	1.332527	3
Media Variables						
Initiator Media Type	3.455959	193	1	5	1.163408	4
Initiator Media Speed	19.38601	193	0.5	30	10.86901	15
Initiator Media Independence	1.34715	193	1	3	0.538811	1
Target Media Type	3.352332	193	1	5	1.311093	4
Target Media Speed	18.10363	193	0.5	30	10.84789	15
Target Media Independence	1.564767	193	1	3	0.741059	1

4.6 DATA COLLECTION PROCEDURES

Data reflecting the four dimensions of the media as described above were collected from the empirical record of the international news media. Data were collected for each of the four dimensions of the media, for both the initiator and the target of each war, for each year of the war. The dataset encompasses 90 wars conducted from 1823 through 1990, involving 51 distinct states, for a total of 193 war-years, requiring 1544 distinct data points representing the media. This section presents the data collection, data coding and data preparation procedures used in the analysis.

4.6.1 Data collection from secondary sources

Published studies of media history present a foundation of data

Studies of the media are drawn on to gather basic information about the emergence of the news media. Many works of media studies examine the emergence of the media in modern society without regard for national borders (Gorman and McLean 2003; McLuhan 1964; Nordenstreng 1997), with a particular national focus (Frenkel 1994; Hibberd 2008; Humphreys 1996; Rugh 2004), or an issue concentration such as globalization and the media or the like (Bennett 1998; Brune and Garrett 2005; Herman and McChesney 1997; Kleinert 2004).

The practice of reporting on foreign policy and wars is typically an important part of the emergence of the news media. Many of the advances in telecommunications which help the

media to gather and distribute news happen because of a security imperative. Similarly, wars news tends to attract the interest of the public, leading to higher circulation which in turns funds expansion in geographic reach, depth of reporting, and speed of gathering and distribution. Robert Desmond published six volumes from 1937 to 1984 chronicling the emergence of war reporting around the world (Desmond 1937, 1978, 1980, 1982, 1984a, 1984b). Others have covered narrower aspects of the parallel emergence of the media and war correspondence (Hallin 1984; Hammond 1998; Mandelbaum 1982; Nickles 2003).

Published studies of particular news media actors

A number of prominent news media organizations and actors have been the subject of extensive study. Historians have written numerous volumes on such pioneers in the field as *The Times of London*, *The New York Times*, Reuters, William Randolph Hearst, Edward R Murrow, etc. These accounts present additional details regarding the dates of and context surrounding the introduction and conduct of the news media in various countries (Hearst 1961; Kendrick 1969; Read 1999; Times of London 1947).

Published accounts of particular foreign policy episodes

The news media on occasion plays a direct role in the conduct of foreign policy. Descriptions of such episodes within published accounts of a particular conflict serve as a basis for understanding the presence of media, the type of media predominating, the level of independence from state control, and the speed with which news reports travel in the direct context of foreign affairs. Examples of this category of source include Schroeder, *Austria, Great Britain, and the Crimean War: The Destruction of the European Concert* (1972), Aspinall-Oglander, *Military*

Operations: Gallipoli (1929) or Engelhardt, *The Battle of Caseros--the Dawn of Modern Argentina* (1948).

Published studies of communications technologies

The introduction of communications technologies such as the drum printing press, the telegraph, radio and television broadcasting are well-documented in the literature. Scholarly studies of these technologies typically present dates and locations of introduction, impact on norms and practice of news reporting, regulatory responses, and even impact on conduct of foreign policy. This works in this category typically describe the advent of new types of media as new technologies, new customs, and new regulatory regimes emerge. Works such as Standage, *The Victorian Internet : The Remarkable Story of the Telegraph and the Nineteenth Century's on-Line Pioneers* (1998) provide in-depth accounts of the growing use of new technologies to reach new places faster and at less expense (Berthold 1922; Neuman 1996; Nickles 2003; Stephens 1988).

Published studies of political, economic and social history of particular countries

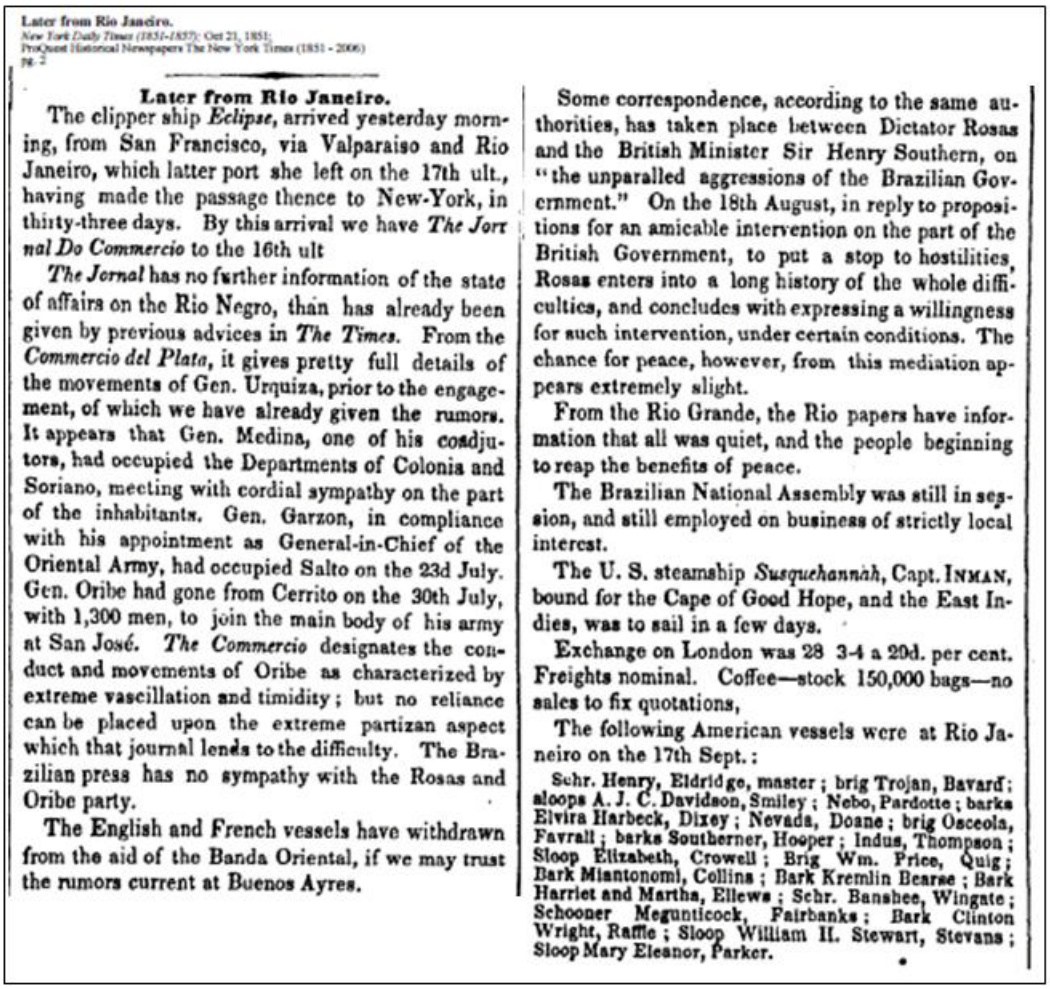
Studies of particular countries typically make reference to the presence of, practices of, and the impact of news media on a country's affairs. An example of this category is Robert Darnton's *Revolution in Print: The Press in France, 1775-1800* which examines in depth the interaction between political dynamics and the emerging business of book and newspaper printing in one particular country (1989). Another example is Rugh, *Arab Mass Media : Newspapers, Radio, and Television in Arab Politics* (2004) which chronicles the emergence of the media in the unique political climate of the Middle East.

4.6.2 Data collection from primary sources

In many cases, published studies described above provide a relatively complete record of the presence of the news media, the type of predominate news media, the regulatory regime influencing the news media, and the speed with which the news media reports news within particular countries at particular times. But primary research into news archives has been employed to complement these secondary sources. This primary research was conducted using copies of newspapers stored in the form of paper copies, microfilm copies, and electronically scanned copies available by interlibrary loan or over the internet. These primary research sources serve two important functions: first, dates and other particulars extracted from published secondary sources have been validated where possible by referring to published news reports of the time; second, occasional gaps in the empirical record as published in secondary sources have been filled by directly consulting news reports of the time.

4.6.3 Data Coding

The war between Argentina and Brazil in 1851/52 provides an illustration of how primary sources are used to support secondary sources. Englehardt (1948) and other historians provide detailed accounts of the political events and the fighting but they do not address the presence, type, speed or independence of the media within Argentina and Brazil at the time. But these details can be derived from an examination of newspaper archives.



Later from Rio Janeiro.
New York Daily Times (1851-1857); Oct 21, 1851;
ProQuest Historical Newspapers The New York Times (1851 - 2006)
pg. 2

Later from Rio Janeiro.

The clipper ship *Eclipse*, arrived yesterday morning, from San Francisco, via Valparaiso and Rio Janeiro, which latter port she left on the 17th ult., having made the passage thence to New-York, in thirty-three days. By this arrival we have *The Jornal Do Commercio* to the 16th ult

The Jornal has no further information of the state of affairs on the Rio Negro, than has already been given by previous advices in *The Times*. From the *Commercio del Plata*, it gives pretty full details of the movements of Gen. Urquiza, prior to the engagement, of which we have already given the rumors. It appears that Gen. Medina, one of his coadjutors, had occupied the Departments of Colonia and Soriano, meeting with cordial sympathy on the part of the inhabitants. Gen. Garzon, in compliance with his appointment as General-in-Chief of the Oriental Army, had occupied Salto on the 23d July. Gen. Oribe had gone from Cerrito on the 30th July, with 1,300 men, to join the main body of his army at San José. *The Commercio* designates the conduct and movements of Oribe as characterized by extreme vascillation and timidity; but no reliance can be placed upon the extreme partizan aspect which that journal lends to the difficulty. The Brazilian press has no sympathy with the Rosas and Oribe party.

The English and French vessels have withdrawn from the aid of the Banda Oriental, if we may trust the rumors current at Buenos Ayres.

Some correspondence, according to the same authorities, has taken place between Dictator Rosas and the British Minister Sir Henry Southern, on "the unparalled aggressions of the Brazilian Government." On the 18th August, in reply to propositions for an amicable intervention on the part of the British Government, to put a stop to hostilities, Rosas enters into a long history of the whole difficultics, and concludes with expressing a willingness for such intervention, under certain conditions. The chance for peace, however, from this mediation appears extremely slight.

From the Rio Grande, the Rio papers have information that all was quiet, and the people beginning to reap the benefits of peace.

The Brazilian National Assembly was still in session, and still employed on business of strictly local interest.

The U. S. steamship *Susquehannah*, Capt. INMAN, bound for the Cape of Good Hope, and the East Indies, was to sail in a few days.

Exchange on London was 28 3-4 a 29d. per cent. Freights nominal. Coffee—stock 150,000 bags—no sales to fix quotations,

The following American vessels were at Rio Janeiro on the 17th Sept.:

Schr. Henry, Eldridge, master; brig Trojan, Bavard; sloops A. J. C. Davidson, Smiley; Nebo, Pardotte; barks Elvira Harbeck, Dixey; Nevada, Doane; brig Osceola, Favrall; barks Southerner, Hooper; Indus, Thompson; Sloop Elizabeth, Crowell; Brig Wm. Price, Quig; Bark Miantonomi, Collins; Bark Kremlin Bearse; Bark Harriet and Martha, Ellews; Schr. Banshee, Wingate; Schooner Megunticock, Fairbanks; Bark Clinton Wright, Raffle; Sloop William H. Stewart, Stevans; Sloop Mary Eleanor, Parker.

Figure 4 - 4. NY Times October 21, 1851 Article

Although it is not possible to secure access to archives of the Brazilian and Argentine press of the day, it is possible to find references to their reporting in the historical archives of two prominent newspapers of that era – *The Times of London* and *The New York Times*. In this case, an article (see Figure 4-4) from *The New York Times* on October 21, 1851(New York Times 1851) makes mention of reporting by the Jornal Do Commercio (a universal newspaper published within Brazil) through September 16th about details of the movements of the Argentine General Urquina during the previous July. This report and others enable one to determine that

one or more universal newspapers – the Jornal Do Commercio and the Commercio Del Plata – are reporting to the Brazilian public about the Argentine conduct of the war. These news reports further establish the speed with which reporting is published, and the level of independence from state control or other bias exhibited by the press. In this way, a primary source complements and confirms the account provided by a secondary source reporting on this war.

4.6.4 Data Preparation

Raw data collected from the above sources is collected for each of the 90 cases of war in the population. This data is examined and coded for each side in each year of each war, yielding four data points (availability, type, independence and speed) for each side (initiator and target) for each observation (a war-year), for a total of 1544 data points for 193 observations (war-years).

The data collected reflect the novel variables described above. This data is combined with data reflecting the variables previously analyzed by Bennett & Stam (1998) to yield the dataset used in this analysis. This dataset is examined for missing data, etc. prior to beginning statistical analysis. As mentioned above, several cases contained in Bennett & Stam (1998) are dropped due to the unavailability of data reflecting the emergence of the international news media.

In the next section, the procedures used to analyze the data are presented.

4.7 ANALYSIS PROCEDURES

4.7.1 Statistical analysis

The categorical form of the dependent variable dictates the use of a multinomial logistic regression procedure to predict the outcome of each war-year. Drawing on authoritative texts, (Hosmer and Lemeshow 2004; Long and Freese 2001; Rabe-Hesketh and Everitt 2007; Royston and Sauerbrei 2008) a statistical model is constructed to approximate the relationship between the independent variables (both the media variables and those variables from previously published studies) and the dependent variable. All statistical analysis is performed using Stata/IC 10.1 for Windows.

The analysis proceeds using a modeling strategy recommended by Hosmer and Lemeshow (2004) with additional suggestions from Long and Freese (2001). The general strategy followed in constructing the model is to first conduct a thorough univariable analysis of each variable to identify candidates for inclusion and/or rejection from a preliminary model. Considerations during this step include numerical problems such as complete or quasi-separation, coding errors, unexplained anomalies, and identification of variables that require transformation. Next, a preliminary main effects model is created that includes those variables that exhibit the best fit during univariate inspection. An iterative process of deleting variables, refitting the model, and verifying the model continues until all variables have been considered singly and in combination with the others. Next, the assumption of linearity in the logit should be checked for all continuous variables by examining graphs of the univariate relationship between those variables and the logit. Appropriate adjustments in scale or other transformations must be made to yield the main effects model. Next, inclusion of any theoretically-justified interaction

terms is considered for statistical appropriateness. This preliminary final model is subjected to an assessment of its adequacy and fit and adjustments are made and iteratively compared using a likelihood-ratio test. The main elements of each step in this strategy are presented here.

Note that the model development process involves a measure of trial and error and is ultimately subject to a number of conflicting priorities. The process is guided first and foremost by inclusion of variables that represent the factors contained in the theory. Second, the selection of variables is limited by the nuances discovered during a thorough analysis of the data which can identify variables that are unsuitable for inclusion in a model for one or more reasons. Third, not all variables contribute to a statistically strong model, in the sense that they do not meet tests of statistical relationship. Therefore, model development proceeds using a process of deleting, refitting, and verifying as discussed above and may result in a model that is not completely satisfying in one or more ways.

Univariable analysis of each variable

For nominal, ordinal, or continuous with few integer values, a contingency table of outcome versus independent variable is constructed using a likelihood ratio chi-square test for significance or a Pearson chi-square test. For variables exhibiting a moderate level of association, odds ratio and confidence limits are estimated using one of the levels as a reference. Any observed zero cells must be addressed at this point; Hosmer recommends strategies to resolve: Collapse categories of the IV; eliminate one or more categories; or, if ordinal, try modeling the variable as continuous (2004, p. 93).

For continuous variables, the univariable analysis begins by fitting a univariable logistic regression model, with means, standard deviations, t statistic, and p value. Construct a smoothed

scatterplot to assess the presence and effect of extreme observations and to assess appropriate scale for each variable.

Identify and address numerical problems

Hosmer advises that "in general, the numerical problems of a zero cell count, complete separation, and collinearity, are manifested by extraordinarily large estimated standard errors and sometimes by a large estimated coefficient as well" (2004, p. 141). Each of these is considered here in turn. Frequency of zero in a contingency table, the signature which is large coefficients and estimated standard errors, which produce either zero or infinity estimates of odds ratios. Complete separation, wherein every observation exhibiting the outcome has the same value of some covariate. Collinearities among independent variables result in variable inflation factors (VIF). VIFs greater than 5 are cause for mild concern. VIFs greater than 10 are indication of severe multicollinearity and necessitate some remedy or the results will be suspect or misleading.

Define a preliminary model

Variables that exhibit some degree of association in the univariable analysis will be included in a preliminary model along with variables that are critical to examining the theory in question. Within the context of a preliminary model, variable contributions to the strength of the model will be examined and candidates for inclusion and removal from the model should be identified. Stepwise selection is recommended in many modeling texts, but this approach must also be guided by theory. Once a set of variables has been selected for inclusion in a preliminary main effects mode, variables that are expected (as guided by theory) to interact will be examined for possible inclusion in a preliminary main effects plus interaction effects model following a similar stepwise approach.

Note that the inclusion and interpretation of interacted terms must be approached very carefully – see works by Braumoeller (2004), Brambor et al (2006), and Huang et al (2000) for detailed discussion.

Note also that the substantive interpretation of the results of multinomial logistic regression models can be difficult due to the simultaneous contribution of multiple variables to multiple equations (Agresti 2002; Agresti and Finlay 1997; Freese and Long 2001; Hosmer and Lemeshow 2004). Rather than directly inspecting the size and direction of the coefficients for individual variables, it is recommended that overall model predictions be generated for values of interest for particular independent variables. The methods employed to conduct substantive interpretation of the statistical models are discussed in the next section.

4.7.2 Substantive analysis

Recycled predictions

The method of recycled predictions is employed to generate predicted outcomes given specific values of particular variables. This method is used, for example, to generate the predicted outcomes for specific values of initiator democracy and war duration presented in Figure 4-1.

Following Bennett & Stam, the method of recycled predictions "uses actual variable values on actual (observations) but sets variables of interest to particular values on all (observations) and then assess(es) the change in outcome probabilities" (1998, p. 360). The method is applied here by drawing on the initial dataset of 193 observations and the set of coefficients estimated by a statistical model based on the theory.

To illustrate how Bennett & Stam arrive at the predicted outcomes presented in Figure 4-1, the method of recycled predictions is presented here in detail. First, the value of initiator democracy (*initiator democracy*) is set to 9 and the value of war duration (*time*) is set to 6 months for all observations in the dataset. All interactive variables involving time or democracy are recomputed and the resulting values substituted into the dataset for all observations. The computed coefficients from the statistical model are then used to calculate the predicted probabilities of each outcome for each observation. The resulting probabilities are then averaged across observations to arrive at an overall probability of each outcome, given a democratic initiator (*initiator democracy*=9) and a war duration of 6 months (*time*=6). The procedure is repeated for durations of 18, 30, 42 and 54 months. Next, the value of democracy is set to 2 (*initiator democracy*=2) and the procedure is repeated for war durations of 6, 18, 30, 42 and 54 months. This yields a table with predicted probabilities for each outcome (continue, win, draw, lose) for each of 5 war durations, for 2 different values of initiator democracy (see Table 4-2).

While the method of recycled predictions is useful for generating substantive predictions from a statistical model, it presents several drawbacks. First and foremost, it can generate numerically unstable results in certain circumstances. Consider what happens when the method is used to generate predicted outcomes for various war durations for initiators with mean levels of democracy. Two methods can be used to generate recycled predictions for such conditions. First, the actual values of initiator democracy can be used for all cases, yielding predicted probabilities of the initiator winning of 0.33, 0.25, 0.21, 0.19, and 0.18 for the war durations of interest. Second, the mean value of initiator democracy (*initiator democracy*=2.46) could be substituted for all cases in the dataset, yielding predicted probabilities of the initiator winning of

Table 4 - 2. Predicted Outcome Probabilities By War Duration Per Bennett & Stam (1998)

Time	Level of Initiator Democracy	P(Continue)	P(Win)	P(Draw)	P(Lose)
6	Nondemocratic	.528	.321	.037	.113
6	Democratic	.318	.491	.023	.167
18	Nondemocratic	.566	.272	.039	.123
18	Democratic	.458	.189	.153	.200
30	Nondemocratic	.494	.261	.133	.11
30	Democratic	.416	.100	.365	.118
42	Nondemocratic	.458	.259	.190	.093
42	Democratic	.295	.074	.575	.056
54	Nondemocratic	.409	.252	.253	.087
54	Democratic	.219	.058	.697	.026

0.33, 0.26, 0.24, 0.23, and 0.22 for the durations of interest. The small but nonzero differences in results between these two approaches are a direct consequence of limitations in the method of recycled predictions. A second drawback to the method of recycled predictions is the difficulty in generating confidence intervals associated with a given set of predictions. Despite these drawbacks, the method of recycled predictions is used in this analysis to facilitate comparison of the results with those published by Bennett & Stam in their original study (1998)

Predicted outcome probabilities using Stata commands

Predicted outcome probabilities are also generated from the statistical models using the *prvalue* command within Stata. Prvalue is contained in the Spost package written by Jeremy Freese and J. Scott Long (2001). The *prvalue* command is used to compute the conditional probability of each outcome, given specific values of particular variables. The *prvalue* command can be used to

generate the same outcome probabilities as the method of recycled predictions, but with two notable differences. First, *prvalue* generates results that are numerically stable and do not fluctuate when the mean value of variables are substituted for all observations. Second, *prvalue* generates a confidence interval for each prediction, which is critical to determining the substantive implications of a given model.

Predicted outcome probabilities are generated using *prvalue* for specific values of particular independent variables. The probabilities are generated by first recalculating the value of each interacted variable (as is done in the method of recycled predictions above) and substituting these values for all cases in the dataset. Next, the *prvalue* command is issued in Stata and the resulting predictions and confidence intervals are collected. Whereas the method of recycled predictions (see Table 4-2) generates a single predicted value for each outcome, *prvalue* generates three: the mean prediction, and two additional predictions representing a confidence interval around the mean prediction.

4.8 BIAS AND ERROR

Like all research endeavors, this project contains potential sources of bias and error (Helberg and SPSS 1996). Measures have been taken in the design of this research to eliminate or mitigate such potential, but there are nevertheless a number of potential sources of bias or error that are unavoidable. The potential sources of bias or error are presented here with a brief discussion of how their presence may influence or limit the findings.

The model used here builds on the work begun decades ago under Singer's Correlates of War project (1978). While significant progress has been made using the Correlates of War

foundation, a number of valid criticisms of the approach have been raised and must be acknowledged. Most generally, Moore observes that Correlates of War uses a particularistic rather than a holistic conceptualization of war and as such removes it from the broader context (2006). Because the Correlates of War framework operationalizes war as a militarized international dispute in which a minimum threshold of deaths occurs over a period of time, the Correlates of War approach is unable to distinguish between zero values of the dependent variable representing the absence of conflict behavior and those where conflict is present but is of an intensity below the threshold of a militarized interstate dispute. This is the familiar problem of "selection bias due to truncating the values of the dependent variable one observes" (King, Keohane, and Verba 1994, p. 129-32; Moore 2006, p. 10).

Also related to the use of Correlates of War as a foundation, the model constructed here uses annual data to represent the construct of war. This operationalization makes it impossible to consider how decision-making is influenced by conditions changing throughout the year. This critique is not unique to the present study, however. As discussed previously, most literature in the international relations field uses annual data because of data availability (Bennett and Stam 2000).

There are a number of aspects of the international news media's role that are beyond the scope of this project. First, it is a well-established historical fact that the news media is sometimes used for propaganda purposes by states engaged in war. Second, the news media sometimes engages in so-called 'yellow journalism' in an effort to increase circulation or advertising revenue. Third, norms and practices of reporting on public reaction to foreign policy events undoubtedly exhibit variation across time and space. Although the theory advanced in this dissertation conceptualizes the news media as a form of transmission channel, it is not

unreasonable to consider the possible roles of the news media in affecting the content of news reports. Such roles could potentially introduce confounding influences and therefore significantly affect the findings of this research. Future research should consider these influences.

The linkage between public debates as reported by the international news media on the one hand and leaders' cost sensitivity on the other hand may vary under the influence of cultural or other local factors. The design used here makes no attempt to account for such potential variations. No attempt is made to trace the micro-linkages which presumably are influenced by the presence of a new channel for information or carried over that channel.

4.9 VALIDITY

Because this dissertation introduces novel variables representing the emergence of the international news media, a measure of attention must be paid to the issue of validity. Drawing on Cook and Campbell, four types of validity are considered: conclusion validity, internal validity, construct validity, external validity. (Cook and T. Campbell 1979)

Conclusion Validity addresses the question of whether a relationship exists between the variables examined. Given the quantitative focus of the research design, this is the most straightforward to evaluate. The results of the logistic regression will clearly spell out whether there is a non-random relationship between the independent and dependent variables.

Internal Validity: Given a relationship between the variables, internal validity is concerned with the issue of whether the relationship is a causal one. Internal validity is addressed in this design by deriving a broad range of predictions from the theory and assessing how consistently those theoretical predictions agree with those generated by the statistical model

which is based on the empirical record. To the extent that the preponderance of the theoretical predictions are supported by the empirical record, the internal validity of the findings can be confidently asserted.

Construct Validity: Given a causal relationship, Construct Validity is concerned with whether is it reasonable to claim that the constructs that comprise the theory are accurately and fairly operationalized by the variables employed in the research design. The novel variables representing the construct of the international news media are the primary focus of concern regarding validity here. The remaining variables have significant research behind them and examining their validity is beyond the scope of the project. Several strategies are employed to ensure construct validity where the media variables are concerned. Before operationalizing the construct of media, the literature on media and communications are thoroughly examined to identify dimensions of the media that apply to the research problem. What emerges from this examination is that the primary strategy for ensuring the construct validity of the design is to examine four distinct facets of the media – availability, type, independence, and speed. It is anticipated that threats to construct validity should not affect all of them.

External Validity is concerned with whether any causal relationship observed between the constructs of the cause and effect can be generalized to other cases. Within the literature examining the onset, duration and termination of war, the well-established practice is to include all wars for which data is available in the population of cases. Therefore, any causal relationships observed within the population can only be generalized to the next war or to future wars. This limitation is consistent with the approach employed throughout the causes of war literature (Trochim 2006).

4.10 RELIABILITY

As with validity, the primary concern with respect to reliability of the findings is the introduction of novel variables reflecting the international news media construct (Walonick 2004). Each of the two steps involved in developing these variables has the potential to influence reliability.. First, the collection of empirical data from the historical record, which necessarily involves a manual search for sources and records. Reliability of this phase is ensured by cross-checking critical dates and facts across multiple sources to avoid introducing error. Second, the raw data collected from the empirical record is coded to create the variables which will be ultimately included in the statistical model. For two of the variables – media availability and media speed – the translation of the historical record into a value of the variable is a simple mathematical operation involving no coder judgment. But for the other two variables – media type and media independence – coder judgment is involved and therefore represents a potential threat to reliability. To guard against this threat, the coder made two passes through this step and compared the results for consistency. While this approach does not guard against bias introduced during the process of collecting the raw data, it does provide a check on the judgment applied by the coder when the raw data is converted to scores. This inter-coder comparison yielded agreement between the two passes for more than 94% of the data points (742 out of 772). The rate of agreement suggests that the research instrument for these variables generates satisfactory reliability.

4.11 CHAPTER SUMMARY: RESEARCH DESIGN

This chapter has presented the research design and methods used to evaluate the theory advanced in Chapter 3. First, a conceptual model that operationalizes the theory is presented. A research design based on the conceptual model is presented next. The research design section describes the basic elements (population of cases, unit of analysis, dependent variable, and independent variables) of the design as well as the methods for collecting the data. The analysis section describes the tools and methods used to perform both the statistical and the substantive analysis of the data. The chapter concluded by examining threats to reliability and validity and their implications for the findings. The development of statistical models suitable for testing the hypotheses is presented in Appendix B. The results generated by those models are presented in the next chapter.

5.0 RESULTS

This chapter uses the statistical models developed in Appendix B to test the hypotheses presented on page 84 in Section 3.8 . The chapter is organized by research question and hypothesis.

5.1 MAIN RESEARCH QUESTION

Main Research Question: To what extent does the international news media influence the outcomes of interstate wars?

5.1.1 Overview of Statistical Model Results

Model 3 is used to predict changes in the probability of each possible war outcome[16] (win, draw, lose, continue) as media and control variables are varied. The logistic regression coefficients for Model 3 were presented in Appendix B but are reproduced in Table 5-1 for the convenience of the reader.

[16] As discussed in Chapter 4, the four war outcomes are labeled from the perspective of the war initiator. For the remainder of the discussion, 'winning' refers to the *initiator* winning; 'losing' refers to the *initiator* losing, and so on.

Table 5 - 1. Model 3 Logistic Regression Results (Maxwell 2010)

Model 3: Influence of Media Variables plus Controls on War Outcome Probabilities			
	Multinomial Logit Estimates[a]		
Independent Variables	**Win vs. Continue**	**Draw vs. Continue**	**Lose vs. Continue**
Balance Of Forces	3.491063*** (1.098528)	2.43519 (1.957763)	-3.74823 (2.642367)
Sum Of Population	-1.13e-06 (1.01e-06)	3.28e-06** (1.54e-06)	-.0000122** (4.44e-06)
Rough Terrain	30.34893*** (8.434361)	33.26401** (12.00702)	-11.66131 (11.19558)
*Rough Terrain*Initiator Strategy*	-13.56259*** (4.009495)	-14.33361** (4.772376)	4.943956 (5.100339)
Sum Of Military Personnel	-.0000399 (.0000718)	-.0002304* (.0001267)	.0003848** (.0001273)
Initiator Strategy	9.684771*** (2.396563)	8.138004** (2.791037)	-4.963213* (2.565978)
Time	-.0106329 (.0126406)	.0235162 (.0130854)	.005305 (.0200067)
Initiator Democracy	-.6116132 (.4166819)	-.5390515 (.7409285)	3.826952** (1.5863)
Target Democracy	.0762646 (.5106091)	-.6292981 (.7636223)	-3.534492** (1.267869)
Initiator Media Type	.9802716* (.5867809)	-1.830452 (1.138183)	.4185405 (1.162991)
Initiator Media Speed	-.1565062** (.0689421)	-.0455221 (.1166524)	.3845732*** (.1153324)
Initiator Media Independence	-.7119558 (.998833)	3.200408** (1.218296)	3.783921** (1.335889)
Target Media Type	-.0789779 (.3113761)	.3740885 (.6368387)	-.5759963 (.6622109)
Target Media Speed	-.0473793 (.0463894)	.1292832 (.0939225)	-.3993923*** (.0897512)
Target Media Independence	-.8938125* (.4825785)	-.7848033 (.4835764)	.942536 (.9826756)
*Initiator Democracy*Initiator Media Type*	.1592469* (.0910348)	.2415834 (.15263)	-.6664941** (.3083906)
*Target Democracy*Target Media Type*	.0169385 (.1181943)	.1672011 (.169489)	.9046992** (.3199671)
*Initiator Democracy*Initiator Media Independence*	.1581317 (.163842)	-.3046931 (.2592132)	-1.256907** (.5292474)
(N=193) Log-likelihood = -121.26 X^2 (df=54) = 6833.49 Pseudo R^2 = 0.4285	[a]Robust standard errors are in parentheses ***p<.01; **p<.05; *p<.10 (two-tailed tests)		

Table 5-1. Model 3 Logistic Regression Results

It is difficult if not impossible to determine the influence of individual variables on outcomes by directly inspecting the coefficients returned by a multinomial logistic regression model (Agresti 2002; Hosmer and Lemeshow 2004; Long and Freese 2001). A more effective approach entails setting particular variables to values of interest and inspecting the resulting predicted outcomes generated by the model. To get an overall understanding of the model, it is useful to first examine the influence of individual variables on predicted war outcomes as they are varied one at a time. Table 5-2 presents changes in predicted probabilities of each war outcome as individual variables are varied from their minimum to their maximum values while the other variables in the model are held constant at their mean values. As discussed on page 113 in section 4.7, special care is exercised when calculating the influence of variables (*initiator democracy, target democracy, initiator media type, initiator media independence, target media type)* that appear in interaction terms[17]. For these variables, both their main-effects contributions and their interaction-effects contributions are included in the calculation of predicted probabilities.

It is useful to examine several of the results presented in Table 5-2 to illustrate how to interpret Model 3. To consider one example, as *balance of forces* is varied from its minimum to its maximum value (while holding all other variables at their mean values), the probability of the initiator winning increases by 40.0%, and the probability of a war continuing decreases by 38.0%. To consider another example, as *rough terrain* varies from its minimum value to its maximum value, the probability of the initiator winning increases by 69.4%, the probability of a draw increases by 30.6% and the probability of the initiator losing falls by 58.1%. These examples illustrate the interpretation of Model 3: both *balance of forces* and *rough terrain*

[17] See (Brambor, Clark, and Golder 2006; Braumoeller 2004; Huang and Shields 2000; Jaccard 2001) for discussion of how to interpret models containing interaction terms.

appear to increase the probability of the initiator winning as they are individually increased, holding all other variables constant at their mean values.

The results of Model 3 presented in Table 5-2 enable the examination of the importance of the news media variables relative to the factors traditionally thought to influence the outcome of wars. The examples of *balance of forces* and *rough terrain* just considered show that these

Table 5 - 2. Model 3: Influence of Independent Variables on War Outcome Probabilities

	Change in Predicted Probabilities[a]			
Independent Variables	**Win**	**Draw**	**Lose**	**Continue**
Balance Of Forces	0.400	0.044	-0.064	-0.380
Sum Of Population	-0.129	0.463	-0.107	-0.228
Rough Terrain	0.614	0.386	-0.448	-0.552
Sum Of Military Personnel	-0.148	-0.052	0.947	-0.746
Initiator Strategy	0.963	0.037	-0.541	-0.459
Time	-0.153	0.341	0.006	-0.193
Initiator Democracy[b]	0.236	-0.039	-0.030	-0.167
Target Democracy[b]	0.203	-0.018	-0.015	-0.171
Initiator Media Type[b]	0.595	-0.389	-0.099	-0.106
Initiator Media Speed	-0.734	-0.007	0.405	0.336
Initiator Media Independence[b]	-0.115	0.665	0.006	-0.557
Target Media Type[b]	-0.037	0.078	0.071	-0.112
Target Media Speed	0.051	0.127	-0.907	0.729
Target Media Independence	-0.168	-0.030	0.037	0.161

(N=193)
χ^2 (df=54) = -121.26
Pseudo R^2 = 0.4285
[a]Change in the predicted probability of each outcome, given an increase from minimum to maximum value of each independent variable, while holding all other independent variables constant at their mean values.
[b]Change in predicted probability includes both main-effect and interaction-effect influence for these variables.

realist factors have a substantial influence on the probability of winning. Another realist variable – *initiator strategy* – also has a very strong influence on the probability of the initiator winning, with the probability of winning increasing by 96% as the initiator moves from a losing strategy (the minimum value of this variable) to a winning strategy (the maximum value). The substantial influence of these three variables predicted by the statistical model is consistent with the importance that military leaders throughout history place on these factors. So it is interesting to compare the influence of the novel media variables with these more traditional factors. Two of the media variables in particular – *initiator media type* and *initiator media speed* – have an apparent influence on winning that is of a similar order of magnitude to the most important realist variables. At the same time, other media variables have less influence. The media variable with the least influence, *target media speed*, appears to increase the probability of winning by only 5.1% as it varies across its range. This brief examination of the individual influence of the variables (holding all others constant at their mean values) shows that some of the media variables may be very important to our understanding of war outcomes.

5.1.2 Hypotheses H1 and H2

The theory advanced in this paper argues that as the media emerges through a series of media types (pre-universal newspaper, universal newspaper, press agencies, radio, broadcast television), the public sphere enlarges. The norms of public engagement emerge as well, enhancing the ability of leaders to send credible signals, which should in turn influence war outcomes. H1 and H2 address the influence of the media as the media type advances:

Hypothesis H1: Probability of winning should increase as a state's media type advances.

Hypothesis H2: Probability of losing should decrease as a state's media type advances.

Table 5-3 presents the change in probability of the initiator winning as the initiator state media type varies from minimum type (pre-universal newspaper) to maximum type (broadcast television). The results show that the probability of the initiator winning increases by 59.5% as the initiator media type varies from minimum to maximum. The 95% confidence interval for this prediction ranges from an increases of 21.6% up to an increase of 97.4%. In other words, the model predicts with 95% confidence that as the initiator media type increases, the probability of the initiator winning increases by between 21.6% and 97.4%. The type of media in the initiator state appears to substantially and (statistically speaking) significantly increase the probability of the initiator winning. Therefore, hypothesis H1 is supported.

Table 5-3 also presents the change in probability of the initiator state losing as its media varies over the same range. The probability of losing decreases by 9.9% as the media varies across the same range of values. However, the 95% confidence interval for this predicted change ranges from -22.1% to +35.5%. In other words, the change in probability of losing as the media type varies is predicted to be between a 22.1% decrease and a 35.5% increase. Therefore, the

Table 5 - 3. Model 3: Change In Outcome Probabilities As Initiator Media Type Varies

	Change in Predicted Probabilities[a]		
Outcome	**Change**	**95% Confidence Interval for Change**	
Win	0.595	0.216	0.974
Lose	-0.099	-0.221	0.355

[a]Change in the predicted probability of outcome, given an increase from minimum to maximum value of *initiator media type*, holding all other independent variables constant at their mean values.

model is not able to provide a statistically significant prediction regarding the change in probability of losing, and hypothesis H2 cannot be supported. At the same time, however, the null hypothesis for H2 cannot be rejected because the model does not rule out zero change in the probability of losing as the type of media varies.

Based on the results presented in Table 5-3, hypothesis H1 is supported, but the null hypothesis for H2 cannot be rejected:

Hypothesis H1: support

Hypothesis H2: unable to reject null hypothesis H_o

5.1.3 Hypotheses H3 and H4

The theorized influence of the media depends on the independence of the media from state control. Therefore, states with more independent media should be expected to enjoy relatively greater success than states with less independent media. H3 and H4 address the influence of media independence on the outcome of wars:

Hypothesis H3: Probability of winning should increase as a state's media becomes more independent.

Hypothesis H4: Probability of losing should decrease as a state's media becomes more independent.

During model development it was noted that interaction between media independence and the level of democracy is statistically significant. Therefore, the influence of *initiator media independence* on war outcomes must be interpreted with care. Table 5-2 shows that the probability of winning decreases by 11.5% as *initiator media independence* varies from its

minimum (state controlled media) to its maximum value (de facto media independence), while holding all other variables at their mean values. However, the modifying effect of democracy on the media's influence must be considered as well by examining how media influence varies for different levels of democracy. The influence of media independence is examined under a democratic regime and a non-democratic regime. For this analysis, a democracy is defined as having a value of *initiator democracy=5.6,* which is one standard deviation greater than the mean value of democracy for all observations in the dataset. A non-democracy is defined as having a value of *initiator democracy=.89,* which is one half of a standard deviation lower than the mean for all observations. As with the analysis of other variables presented above, the change in probability of winning is calculated as media independence is varied from its minimum (state-controlled media) to its maximum (*de facto* media independence) for both a democracy and a non-democracy. The same approach is used to calculate the influence on the probability of losing. Table 5-4 presents the influence of media independence on the probability of winning and the probability of losing for the two different levels of initiator democracy.

Table 5-4 shows that when the modifying effect of democracy is considered, the influence of media independence on war outcomes is in agreement with the theory's predictions. For a democratic initiator, variations in media independence from the minimum to the maximum value increase the probability of winning by 48.0%. However, the confidence interval for the predicted change ranges from -2.8% to 66.2% which makes the prediction statistically insignificant at the 95% confidence level. For a non-democratic initiator, the results show that as media independence varies, the predicted change in the probability of winning is a statistically significant -12.3%. Together, these results show that the predicted influence of media independence on the probability of winning are modified by the level of democracy. When

Table 5 - 4. Outcome Probabilities: Modifying Effect Of Democracy On Influence Of Media Independence

	Change in Predicted Probabilities of Outcome[a]		
Outcome	**Change**	**95% Confidence Interval for Change**	
Win (*Initiator Democracy*=.89)	-0.123	-0.217	-0.029
Win (*Initiator Democracy*=5.6)	0.480	-0.028	0.662
Lose (*Initiator Democracy*=.89)	0.251	-0.263	0.531
Lose (*Initiator Democracy*=5.6)	-0.039	-0.137	0.059

[a]Change in the predicted probability of outcome, given an increase from minimum to maximum value of *initiator media independence*, holding *initiator democracy* at specified value and all other independent variables constant at their mean values.

the level of democracy drops below approximately *initiator democracy*=4 (approximately one-half deviation above the mean value of *initiator democracy*), the influence of media independence on the probability of winning shifts from positive to negative (analysis omitted). The results suggest that as the level of democracy increases, the positive influence of media independence on the probability of winning increases.

Table 5-4 also shows the influence of media independence on the probability of losing for two values of democracy. The probability of a democratic initiator losing decreases by 3.9% as media independence varies across the same range. However, the prediction regarding the probability of losing is not statistically significant since the confidence interval for the predicted change ranges from -13.7% to 5.9%. The modifying effect of democracy on the influence media independence has on losing is apparent in these results, although they fail to meet tests of statistical significance. Based on these results, then, the results of hypothesis tests for H3 and H4 are:

Hypothesis H3: Unable to reject null hypothesis H_o

Hypothesis H4: Unable to reject null hypothesis H_o

5.1.4 Hypotheses H5 and H6

The model of the media reporting on wars suggests that as the media emerges, the speed at which news is gathered and reported increases, owing to changes in the practices of media enterprises made possible by advances in telecommunication technology. While the theory is silent regarding the role of media speed in particular, it is reasonable to assume that the increasing speed of the media should complement the influence of media type as it advances. H5 and H6 address the influence of the media as media speed increases:

Hypothesis H5: Probability of winning should increase as a state's media speed increases.

Hypothesis H6: Probability of losing should decrease as a state's media speed increases.

Model 3 predicts that as *initiator media speed* increases from its minimum to its maximum value, the probability of a war initiator winning declines by 71% (see Table 5-5). The 95% confidence interval ranges from a 75.2% decrease in the probability of winning to a 20.5% decrease in the probability of winning. This result is the opposite of that predicted by the theory advanced in this paper and is quite surprising. Therefore, H5 must be rejected.

Table 5 - 5. Model 3: Change In Outcome Probabilities As Media Speed Varies

	Change in Predicted Probabilities[a]		
Outcome	**Change**	**95% Confidence Interval for Change**	
Win	-0.734	-0.752	-0.205
Lose	0.405	-0.272	1.000

[a]Change in the predicted probability of outcome, given an increase from minimum to maximum value of *initiator media speed*, holding all other independent variables constant at their mean values.

Considering hypothesis H6, the model predicts that the probability of a war initiator losing increases by 40.5% as the initiator media speed varies from its minimum to its maximum value. The confidence interval for this prediction ranges from a 27.2% decrease in the probability of the initiator losing up to a 100% increase in the probability of the initiator losing. This means that the model does not provide a statistically significant prediction of the change in probability of the initiator losing as media speed varies. Therefore, for hypothesis H6, the null hypothesis of no change cannot be rejected. The surprising finding here that media speed has an opposite effect of media type will be discussed along with a discussion of all results later in this chapter. The findings for hypotheses H5 and H6 are:

Hypothesis H5: Reject

Hypothesis H6: Unable to reject null hypothesis H_o

A discussion of the results for the main research question is presented after the results are presented for the remaining sub-questions. Results for sub-question 1 are presented next.

5.2 SUB-QUESTION 1

Sub-Question 1: To what extent is the influence of the international news media on war outcomes modified by regime type?

The theory advanced in this paper argues that the media exerts an influence on wars that is distinct from the influence of democratic institutions. In order to examine this part of the theory, it is important to examine the influence of the media in the context of regime type. H10

addresses the potential modifying influence of regime type on the theorized influence of the media on war outcomes.

5.2.1 Hypothesis H7

Hypothesis H7: The influence of the media on the probability of winning should increase under a democratic regime

During model development in Appendix B, it was established that interactions between media variables and the level of democracy make a statistically significant contribution to Model 3. That finding alone suggests that H7 is probably supported, but further exploration is warranted.

Whereas Table 5-2 presents the change in outcome probabilities when a single variable is changed from its minimum to its maximum, H7 is concerned with the influence of two variables on war outcomes. Furthermore, the two variables of interest – media type and democracy – are represented in Model 3 by a multiplicative interaction term. Examining how these two variables interact to influence war outcomes must be done for specific values of democracy and media type.

The influence of media type on war outcomes was examined above by calculating the change in probability of winning when media type is varied from its minimum to its maximum value. The interaction between media type and regime type can be examined by varying media type across the same range of values while setting regime type to one or more values of interest. Specifically, the interaction is examined under a non-democratic regime, a regime with an average level of democracy, and a regime with a high level of democracy. For this analysis, a

democracy will be defined as having a value of *initiator democracy=5.6,* which is one standard deviation greater than the mean value of democracy for all observations in the dataset. A non-democracy will be defined as having a value of *initiator democracy=.89,* which is one half of a standard deviation lower than the mean for all observations. The change in probability of winning is calculated as *initiator media type* is varied from its minimum to its maximum for both *initiator democracy*=.89 and *initiator democracy*=5.6. The results are presented in Table 5-6.

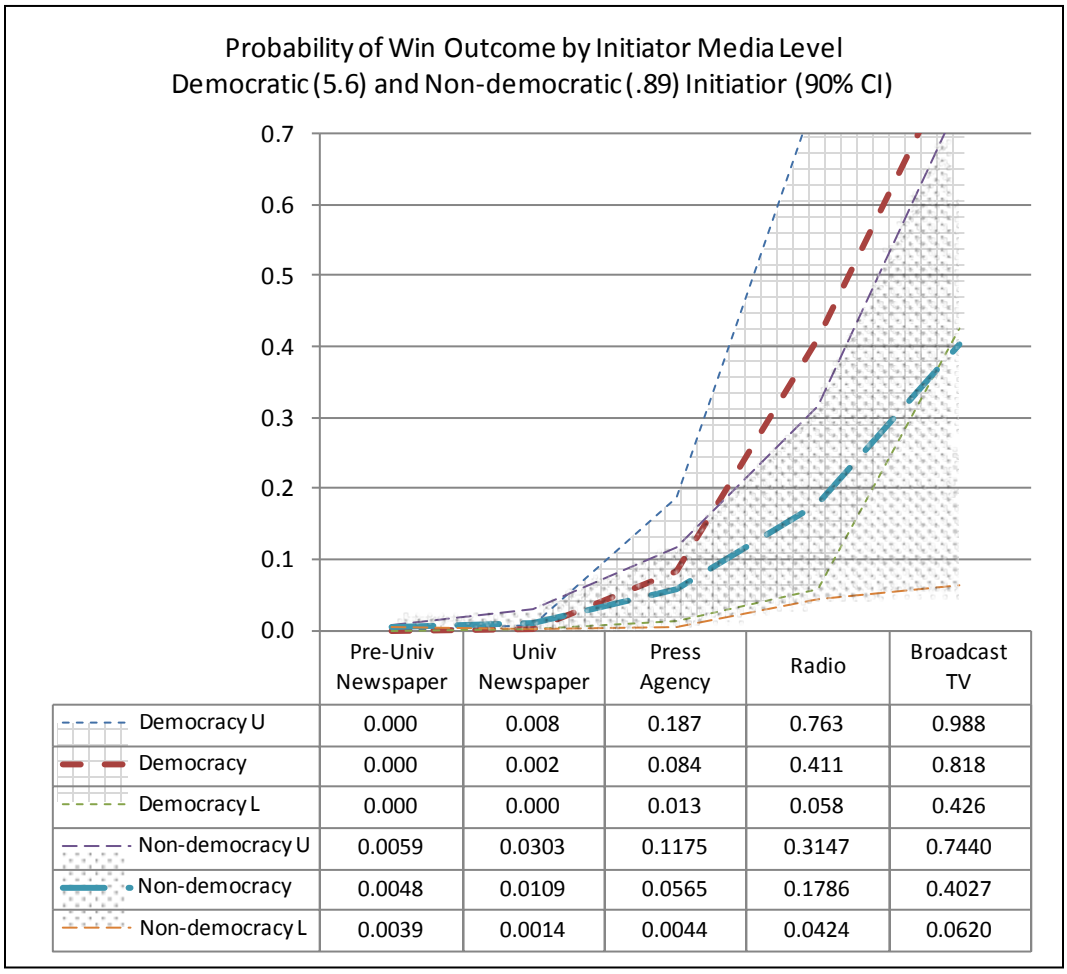
Table 5-6 shows that as the level of democracy in the initiator state varies from non-democratic (*initiator democracy*=.89) to democratic (*initiator democracy*=5.6), the influence of initiator media changing from its minimum to its maximum value increases. For a non- democratic state, a maximum variation in media type increases the probability of winning by 40.3%. For a democratic state, a maximum variation in media type increases the probability of winning by 81.8%. These results show that the influence of the media is multiplied by the influence of regime type.

Table 5 - 6. Change In Probability Of Win Outcome, Varying *Initiator Media Type* And *Initiator Democracy*

Model 3: Influence of Independent Variables on War Outcome Probabilities			
	Change in Predicted Probabilities[a]		
Independent Variables	**Change in p(win)**	**95% Confidence Interval for Change**	
Initiator Media Type (With *Initiator Democracy*=Mean)	0.595	0.216	0.974
Initiator Media Type (With *Initiator Democracy*=.89)	0.403	0.062	0.744
Initiator Media Type (With *Initiator Democracy*=5.6)	0.818	0.426	0.988

[a]Change in the predicted probability of Win outcome, given an increase from minimum to maximum value of *initiator media type*, holding *initiator democracy* at specified values, holding all other independent variables constant at their mean values.

Another way to present the same interaction phenomenon is to graphically examine how the probability of winning changes as media type varies. Figure 5-1 presents two sets of predictions: the probability of a war initiator winning as the initiator media type varies, for both a democratic initiator (*initiator democracy*=5.6) and a nondemocratic initiator (*initiator democracy*=.89). The influence of media on the probability of winning is much higher for the democracy than for the non-democracy. While increases in the type of media contribute to



	Pre-Univ Newspaper	Univ Newspaper	Press Agency	Radio	Broadcast TV
Democracy U	0.000	0.008	0.187	0.763	0.988
Democracy	0.000	0.002	0.084	0.411	0.818
Democracy L	0.000	0.000	0.013	0.058	0.426
Non-democracy U	0.0059	0.0303	0.1175	0.3147	0.7440
Non-democracy	0.0048	0.0109	0.0565	0.1786	0.4027
Non-democracy L	0.0039	0.0014	0.0044	0.0424	0.0620

Figure 5 - 1. Probability of Win Outcome by Initiator Media Level, Democracy and Non-democracy

increased probability of winning, they do so much more for democratic regimes than for non-democratic ones. The results show that the influence of a war initiator's media type on war outcomes depends on the regime type of the initiator.

H7 is therefore supported, based on two different tests. First, the logistic regression coefficient for the interaction between democracy and media type in Model 3 (see Table 5-1) is statistically significant ($p<.05$) for at least one of the regression equations. Second, the substantive examination the influence of democracy and media type on war outcomes presented here graphically shows how the two variables interact. The interaction between democracy and media type is both statistically significant and substantively strong:

Hypothesis H7: Support

The results for sub-question 2 are presented next.

5.3 SUB-QUESTION 2

Sub-Question 2: To what extent does the international news media differentially influence war initiators and targets?

The theorized credible signaling mechanism of the media has a different relevance for war initiator states than for targeted states. Specifically, when a state is attacked, the public generally rallies around the leader, which makes audience costs a less reliable indicator of resolve. Therefore, while the probability of winning is expected to increase for initiator states with more advanced media, the probability of target states winning is not expected to be affected. Research question 3 is examined by testing two hypotheses.

5.3.1 Hypotheses H8 and H9

H8 and H9 address the influence of the media on initiator states and target states:

> Hypothesis H8: Probability of winning should vary with type of media for initiator states
>
> Hypothesis H9: Probability of winning should not vary with type of media for target states

During model development, it was observed that whereas *initiator media type* made a significant contribution to Model 3, *target media type* did not. This suggests that hypotheses H8 and H9 are likely to be supported. However, *target media type* was included in the model specifically so that its influence could be examined and compared to the influence of *initiator media type*. The influence of these variables is examined here in two ways.

The simplest approach is to compare the influence of a maximum change in the type of media in the initiator state to a maximum change in the type media in the target state. For the initiator media, the probability of winning with pre-universal newspapers (the minimum type of media) is compared to the probability of winning with broadcast television (the maximum type of media). The comparison is also made between the probability of winning with the target state media set to the minimum type and with the target state media set to the maximum type. Then, the influence of a maximum change in initiator state media type is compared to the influence of a maximum change in target state media type. Table 5-7 presents these results.

As shown in Table 5-7, a maximum change in the type of media in the initiator state increases the probability of the initiator state winning by 59.5%. On the other hand, a maximum change in the type of media in the target state decreases the probability of the initiator state winning by 3.7%. The change in probability as the initiator media varies is both large and statistically

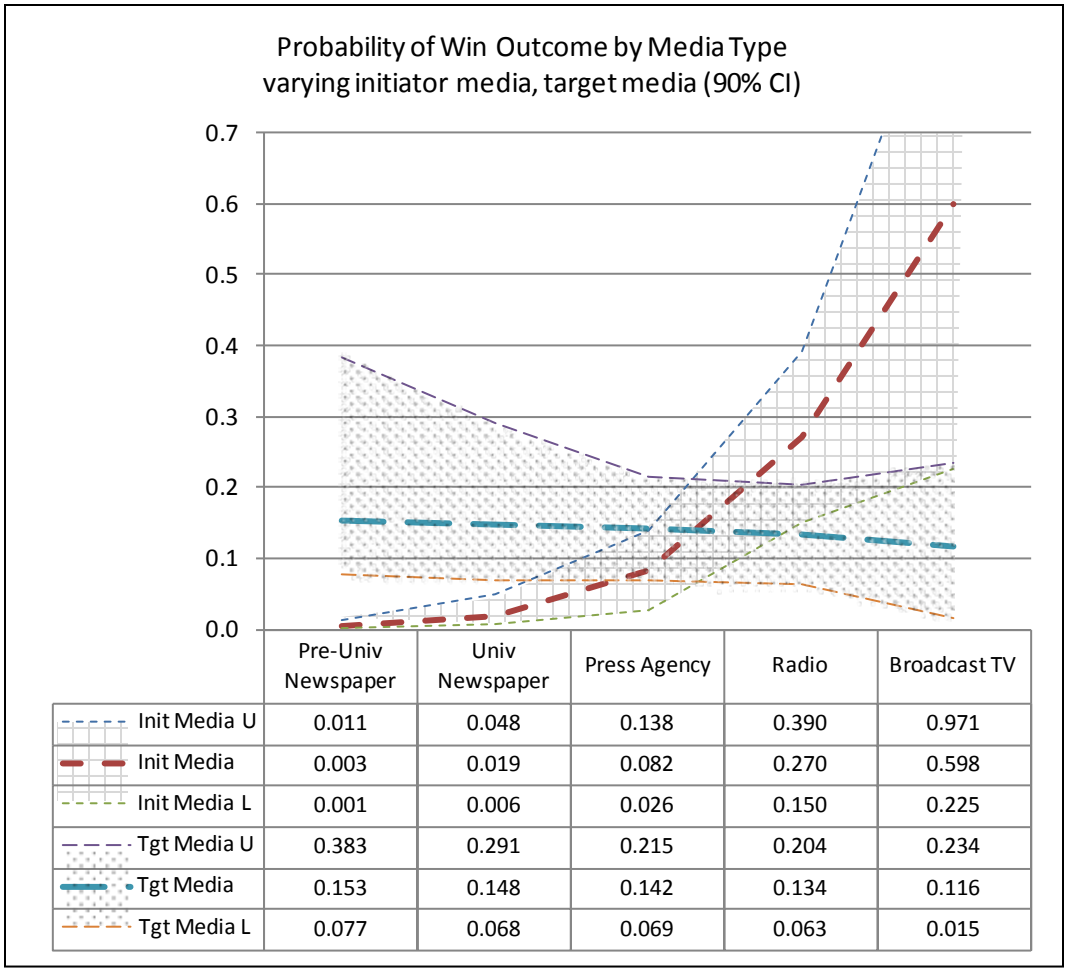
significant. On the other hand, the change in probability as the target media varies is neither substantively important nor statistically significant. These results lend support for hypotheses H8 and H9.

Table 5 - 7. Change In Win Outcome Probability As Initiator Media, Target Media Vary

Model 3: Influence of Initiator Media and Target Media on War Outcome Probabilities			
	Change in Predicted Probabilities[a]		
Independent Variables	**Win**	**95% Confidence Interval for Change**	
Initiator Media Type	0.595	0.216	0.974
Target Media Type	-0.037	-0.424	0.351

[a]Change in the predicted probability of Win outcome, given an increase from minimum to maximum value of independent variable, holding all other independent variables constant at their mean values.

A second, confirming approach to examining the differential influence of the initiator media type and the target media type is to graphically plot the change in outcome probabilities as the types of media vary. Figure 5-2 presents two sets of predictions: the probability of the initiator winning as the initiator media type varies from pre-universal newspaper (the minimum value) to broadcast television (the maximum value) and, the probability of the initiator winning as the target media type varies over the same range. Each predicted probability is accompanied by a 95% confidence interval. The graphical results elaborate on the results presented in Table 5-7. As the initiator state media type varies through each successive phase, the probability of the initiator winning increases. The confidence intervals surrounding the predictions show that the change in probability is statistically significant. On the other hand, as the target state media varies, the probability of the initiator winning does not change much at all, and the confidence intervals overlap, signifying that the change in probability is not statistically significant.



	Pre-Univ Newspaper	Univ Newspaper	Press Agency	Radio	Broadcast TV
Init Media U	0.011	0.048	0.138	0.390	0.971
Init Media	0.003	0.019	0.082	0.270	0.598
Init Media L	0.001	0.006	0.026	0.150	0.225
Tgt Media U	0.383	0.291	0.215	0.204	0.234
Tgt Media	0.153	0.148	0.142	0.134	0.116
Tgt Media L	0.077	0.068	0.069	0.063	0.015

Figure 5 - 2. Outcome Probabilities As Initiator Media, Target Media Vary

The results presented using both methods show support for hypotheses H8 and H9:

Hypothesis H8: Support

Hypothesis H9: Support

The results for sub-question 3 are presented next.

5.4 SUB-QUESTION 3

Sub-Question 3: To what extent is the influence of the international news media modified by war duration?

The theorized influence of the media on war outcomes is expected to vary with the duration of wars. Within the time required for the gap between the leader's knowledge and the public's knowledge to narrow, the theorized credible signaling mechanism cannot function. Therefore, the media is expected to have comparatively less influence on shorter wars and more influence on longer wars. H10 addresses the interaction between the influence of media and the duration of wars:

5.4.1 Hypothesis H10

Hypothesis H10: Influence of media on probability of winning should increase as war duration increases.

As was discussed during the preceding chapter, interactions between *time* and the media variables were not found to be statistically significant. Therefore, the null hypothesis for H10 of no relationship cannot be rejected.

Hypothesis H10: Unable to reject null hypothesis H_o

5.5 SUMMARY OF HYPOTHESIS-TESTING RESULTS

The results for all 10 hypotheses tested in this chapter are summarized in Table 5-8

Table 5 - 8. Summary Of Hypothesis Testing Results

	Expected Finding	Result
Main Research Question: To what extent does the international news media influence the outcomes of interstate wars?		
H1	Probability of winning should increase as a state's media type advances.	Support
H2	Probability of losing should decrease as a state's media type advances.	Unable to reject null hypothesis H_o
H3	Probability of winning should increase as a state's media becomes more independent.	Unable to reject null hypothesis H_o
H4	Probability of losing should decrease as a state's media becomes more independent.	Unable to reject null hypothesis H_o
H5	Probability of winning should increase as a state's media speed increases.	Reject
H6	Probability of losing should decrease as a state's media speed increases.	Unable to reject null hypothesis H_o
Sub-Question 1: To what extent is the influence of the international news media modified by regime type?		
H7	The influence of the media on the probability of winning should increase under a democratic regime	Support
Sub-Question 2: To what extent does the international news media differentially influence war initiators and targets?		
H8	Probability of winning should vary with type of media for initiator states	Support
H9	Probability of winning should not vary with type of media for target states	Support
Sub-Question 3: To what extent is the influence of the international news media modified by war duration?		
H10	Influence of media on probability of winning should increase as war duration increases.	Unable to reject null hypothesis H_o

5.6 DISCUSSION OF RESULTS

The results of the hypothesis testing show partial support for the theory.

Many aspects of the theory are supported

Media Type. The results indicate that advances in media type appear to contribute to higher probability of the initiator winning. As the predominant media type in the initiator state varies from pre-universal newspapers to broadcast television, the probability of the initiator winning increases by a substantial amount, controlling for other factors. This finding is consistent with the theory and suggests that more advanced media types with their enlarged public sphere enhance leaders' ability to credibly signal reveal formerly private information regarding power and cost sensitivity.

Democracy. The results show that democracy appears to modify the influence of media type on the probability of winning. In other words, while advances in media type increase the probability of winning for all types of regimes, they do so to a greater extent in democracies and to a lesser extent in non-democracies. This finding is consistent with the theory and suggests that the enlarging public sphere represented by the media interacts with democratic institutions to influence war outcomes.

Influence on Initiators but Not Targets. The results indicate that the type of media predominating in an initiator state appears to influence war outcomes, whereas the type of media in a target state does not. These results are consistent with the theory. As discussed in Chapter 3, elites and the public at large in states that have been attacked are often observed to support leaders - the so-called 'rally 'round the flag' phenomenon. The rally effects temporarily obscure

dissenting views and thereby mute the credible signaling role of both democratic institutions and the media. Therefore, the influence of media type is expected in initiator states but not in target states.

One aspect of the theory must be rejected

Media Speed influence on Winning. The results suggest that increases in initiator media speed appear to contribute to a lower probability of winning, in contrast to the influence of media type. Although the theory developed in Chapter 3 is silent regarding the influence of media speed on war outcomes, an assumption was made that the influence of speed would be in the same direction as media type. That is, if a widening public sphere as a result of the emergence of new types of media would enable leaders to more credibly signal, then being able to do so faster should have a consistent influence, at least in terms of the direction of influence. The results indicate that increases in initiator media speed in fact have the opposite effect of increases in media type, which is quite surprising. Both methodological and theoretical explanations for this unexpected result are discussed next.

A methodological explanation for this result is that since speed and type are measures of the same phenomenon (the media), it may be inappropriate to vary one while holding the other constant. This explanation is explored by varying initiator media type and media speed in unison, as follows. The appropriate value of initiator media speed for each type of initiator media is determined from the dataset. For the minimum type of initiator media (pre-universal newspaper), the mean value of initiator media speed is 3.47 dispatches per day. For the maximum type, media speed is 29.58 dispatches per day. The difference in the predicted outcomes as media type and media speed are varied from minimum to maximum in unison is presented in Table 5-9.

Table 5 - 9. Model 3: Influence Of Initiator Media Type And Speed On War Outcome Probabilities

Model 3: Influence of Initiator Media type and speed on War Outcome Probabilities			
	Change in Predicted Probabilities[a]		
Outcome	**Change**	**95% Confidence Interval for Change**	
Win	0.193	-0.028	0.563
Lose	0.043	-0.075	0.161

[a]Change in the predicted probability of outcome, given an increase from minimum to maximum value of *initiator media type* and *initiator media speed*, holding all other independent variables constant at their mean values.

Table 5-9 shows that as both media type and media speed are varied, the probability of winning increases by 19.3%, which supports the theory. However, the confidence interval surrounding this prediction ranges from a decrease of 2.8% to an increase of 56.3%, making the prediction statistically insignificant. At the same time, varying media type and speed together in this manner yields a prediction that the probability of losing increases by 4.3%, which supports the theory but is also, however, a statistically insignificant prediction. While it appears from these results that it may be more appropriate to examine the influence of media type and media speed by varying them together, no statistically significant conclusions can be drawn from this test. Similarly, explorations of an interaction effect between the two variables yield no significant findings. However, this exploration suggests that the influence of media speed is not universally in opposition to the predictions of the theory, and in that sense do not necessarily critically wound the theory advanced in this paper. Other possible explanations for the surprising findings regarding the influence of media speed are examined next.

A theoretical explanation for the unexpected finding regarding the influence of media speed is that speed may play a different informational role than media type. The media literature examined in Chapter 2 specifically addresses the expanding public sphere, new forms of public

engagement and the reciprocal influence on domestic politics that takes place as different types of media emerge. The literature is silent about the specific role of the speed with which the media gathers and reports news.

Another theoretical explanation for the unexpected finding regarding the influence of media speed is that speed may not play an informational role at all. Rather, it is possible that media speed is a reflection of technological advances that somehow enable opponents to counter the advantages conferred by democratic institutions and the media. During model development, it was noted that media speed does not appear to interact with democracy variables to a statistically significant degree. This finding lends some support to the concept that speed may not function in concert with democratic institutions the way media type appears to do. Analysis of the influence of media speed in the context of the regime type variables included in model 3 fails to find positive or negative evidence regarding this concept (analysis omitted). Neither of the theoretical explanations offered here for the surprising influence of media speed on war outcomes are particularly satisfying. Those aspects of the theory that can neither be supported nor rejected by the hypothesis tests are discussed next.

Several aspects of the theory can neither be supported nor rejected

Media type influence on losing. Predictions from the model regarding the influence of media type on the probability of losing appear to agree with theory but are not statistically significant. The model predicts that as the media type varies from minimum to maximum, the probability of losing decreases by 9.9%, with a 95% confidence interval ranging from a decrease of 22.1% to an increase of 35.5%. The wide confidence interval surrounding the predicted value is a consequence of weaknesses in model 3 that were noted during model development. In particular, model 3 produces relatively large standard errors for some of the logistic coefficients. Loosening

the confidence level surrounding the model's predictions reveals that the predicted 9.9% decrease in probability of losing becomes significant at the 60% confidence level. The theory regarding the influence of media type on the probability of losing may be correct, but a stronger model is needed to support the theory at the 95% confidence level. The weak model and/or the limited number of observations in the dataset also limit the ability to support or reject predictions regarding the influence of media speed and media independence, which are discussed next.

Media speed influence on losing. Increases in media speed appear to influence the probability of winning, but the influence of media speed on the probability of losing is unclear. The model predicts an increase of 40.5% in the probability of losing as media speed increases, but the confidence interval surrounding the prediction is so wide as to render the prediction statistically insignificant. The influence of media type and media speed on the probability of the initiator losing can only be confidently tested using a stronger model and/or more observations.

Media Independence influence on Winning. Increases in level of media independence appear to contribute to a higher probability of winning when the initiator is democratic. This result is consistent with what is expected based on the theory, however, the confidence interval surrounding the prediction falls just outside the 95% confidence interval. Hence, the prediction that media independence influences the probability of winning can neither be supported nor rejected, in the strictest sense. However, given that the predicted influence is directionally consistent with the theory and is just outside the range of statistical significance, it is reasonable to consider the influence of media independence as perhaps increasing the probability of winning as predicted by the theory, and most likely not critically wounding the theory.

Media Independence influence on Losing. Increases in target state media independence from state-controlled to *de* facto independence appear to influence the probability of winning,

but the influence of media independence on the probability of losing is unclear. The model predicts a slight 0.4% decrease in the probability of losing as media independence varies across its entire range, but the confidence interval surrounding the prediction is such that the prediction is not statistically significant. The influence of media independence on the probability of losing can only be confidently tested using a stronger model and/or larger number of observations.

Modifying influence of time. The theory predicts that the influence of the media may play out over time in one or more ways. The media may exert an *ex ante* influence on war outcomes because its mere presence influences leaders' threats and actions. The media may also exert an informing influence on leaders as wars unfold. To the extent the second informing mechanism is present, the passage of time during a war should modify the influence of media type on war outcomes. But the statistical models developed in this study do not show *time* interacted with media variables having a statistically significant relationship to war outcomes. Without such interaction, it is impossible to say to what extent *time* modifies the influence of the media on war outcomes. Thus, the results make it impossible to conclude how the influence of the media differs in short wars as compared to longer wars, or how the media influences the probability of wars continuing.

The inability to reject the null hypothesis that *time* has no modifying effect on the influence of the media leaves open several possibilities. One possibility is that the influence of the media on outcomes is modified to some extent by the passage of time during wars, but that the current design is unable to confidently measure such influence. While the statistical model used in this study is unable to precisely state the extent and direction of any modifying influence of *time*, it is possible to infer that any such influence during the course must be relatively small and unimportant. Therefore, in a practical sense, it is reasonable to conclude that the passage of

time as a conflict unfolds does not, to any important extent, modify the media's influence on war outcomes.

Another possibility is that the media only exerts its influence on leaders before wars start, by constraining leaders who know that their speech and audience reaction to their speech will be transmitted via the media, and who know that foreign leaders know the same. The design of the current study precludes an examination of the *ex ante* influence of the media, since it is restricted to examining wars that are underway. The need to examine this possible explanation is discussed in the next chapter.

At this point, the findings presented in this chapter are summarized.

5.7 CHAPTER SUMMARY: RESULTS

5.7.1 Statistical Results

In this chapter, the theory advanced in this paper was tested using ten hypotheses that were advanced in Chapter 3. The test results provide partial support for the theory. Overall, adding media variables to an existing model of war outcomes significantly improves the explanatory power of that model (.001). Several more specific findings also support the theory, as follows.

The results support most aspects of the theory. As the type of media in a war initiator state becomes more advanced, the probability of the initiator winning significantly and substantially increases, controlling for other factors known to influence wars. Similarly, increases in the independence of the initiator media appear to substantially increase the probability of winning for democratic initiators, although this prediction falls just short of

statistical significance at the 95% confidence level. In addition, as the level of democracy in a war initiator state increases, it appears to interact with the type of media and the level of media independence to further increase the probability of the initiator winning. The results also support the theory in that the influence of the media occurs in the war initiator state but not in the target state.

The influence of the type of media on the probability of winning does not appear to be affected by the passage of time (i.e., as the duration of a war increases).

Findings regarding the influence of media speed are the opposite of what is predicted by the theory. Increases in media speed appear to contribute to a lower probability of winning, holding all other variables at their mean values. However, varying media speed and media type in unison reveal that the influence of media speed is not in all cases opposite of that predicted by the theory. Further research is required to more clearly understand the role of media speed.

Finally, some predictions of the theory can neither be supported nor rejected based on the results. The influence of increases in media type, increases in media speed and increases in media independence on the probability of the initiator losing cannot be determined to a satisfactory level of statistical significance using the research design and limited dataset employed here. The consistent inability to confidently predict the influence of the media on the probability of losing may be related to the statistical model and dataset used. The dataset on which the model is based contains only 19 'lose' outcomes out of a total of 193 observations, in contrast to 50 'win' outcomes[18]. The relatively few instances of the 'lose' outcome make it difficult for the model to confidently predict the probability of 'lose' outcomes. Unfortunately,

[18] The relatively few instances of the 'lose' outcome in the dataset also contribute to the model under-predicting the 'lose' outcome, as discussed during examination of the model's proportional reduction in error (PRE) in Section 8.5.1.

the range of predictions generated by the statistical model are such that it is impossible to conclude that the influence of these variables is unimportant.

Drawing the statistical results together, the research questions posed at the outset are addressed in the next section.

5.7.2 Reviewing the Results in Light of the Research Questions

***Main Research Question**:* To what extent does the international news media influence the outcomes of interstate wars?

The international news media appears to exert a substantial influence on the outcome of wars. Several facets of the news media examined here appear to have a strong[19] influence on the probability of war initiator states winning wars. More advanced types of media and higher levels of media independence in initiator states are associated with higher probabilities of winning.

While the results predict the influence of media type and media independence on the probability of winning, the influence of the media on the probability of losing cannot be predicted with a reasonable level of confidence. This is most likely a limitation of the research design.

The results predict that higher speeds of news gathering and reporting are associated with a *lower* probability of winning. Theoretical and methodological explorations undertaken within this study do not satisfactorily explain why the speed of media should have the opposite influence of the type and independence of media. Additional research is required to understand this result.

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[19] The characterization of the influence as 'strong' follows Raftery's guidance, as discussed in Section 8.5 on page 229.

***Sub-Question 1**:* To what extent is the influence of the international news media modified by regime type?

Higher levels of democracy in a war initiator state appear to increase the influence of media type and media independence on war outcomes. Once the level of democracy in a war initiator exceeds a nominally-democratic threshold, increases in the level of democracy increase the positive influence of media type and media independence on the probability of winning. The news media appears to have an influence that is distinct from, but at the same time interacts with, the influence of democracy.

***Sub-Question 2**:* To what extent does the international news media differentially influence war initiators and targets?

The influence of the news media appears to influence the prospects of the war initiator state winning while not having an influence on the prospects of the target state winning. Theoretical implications of this finding are discussed in the next chapter.

***Sub-Question 3**:* To what extent is the influence of the international news media modified by war duration?

The influence of the news media does not appear to be modified by war duration. Theoretical implications of this finding are discussed in the next chapter.

In the next chapter, the policy and theoretical implications of the results are discussed.

6.0 CONCLUSIONS

In this chapter, the theoretical implications and policy implications of the results are presented along with appropriate discussion. An agenda for future research is presented that suggests how to address methodological and substantive concerns with the findings and how to build on the findings.

6.1 THEORETICAL IMPLICATIONS

The findings suggest that availability of an additional communication channel appears to influence the outcome of wars. The theory advanced in this paper argues that the additional channel – the international news media - serves to reveal information about leaders' cost sensitivity. Information about leaders' cost sensitivity, in turn, helps to resolve disagreements and uncertainty about the relative resolve of the parties, which is a precondition to finding a negotiated settlement. The finding that the presence of the international news media appears to influence the outcome of wars suggests support for the theory. The findings have several theoretical implications which are presented here.

The findings lend support to a conception of war as being at least partially a problem of asymmetric information. Slantchev, Schultz and others point to a variety of informing mechanisms that may help states to overcome this information problem by revealing information

about cost sensitivity (Schultz 2001; Slantchev 2004). Using a formal model, Schultz (1998) suggests that the presence within a state of an opposition party decreases the *ex ante* probability of war by clearly revealing the state's preferences. The theory advanced in this paper argues that the media performs an analogous informing function. Given the presence of the media, foreign observers have multiple sources of information about the political costs of a given foreign policy issue (Gilligan and Krehbiel 1989). From the perspective of a foreign observer, two sources who are in competition are a more reliable indicator than a single source with a vested interest (Milgrom 1986).The findings also complement Slantchev's insight that fighting plays an instrumental role together with negotiations to ultimately force convergence between the two parties' beliefs regarding relative strength and resolve (Slantchev 2004). Although he does not specifically test the notion, he speculates that outside channels such as the media and intelligence-gathering should play an important role in the process of convergence.

The results also shed light on treatments of democracy in the literature on war. Whereas most literature treats democratic institutions as monolithic features of states, the results of this study suggest that the media plays a role that is distinct from, but interacts with, democracy. Understanding of the precise influence of democratic institutions may benefit from considering the news media as a distinct entity separate from democracy.

The findings suggest that existing research into the causes of war may suffer from omitted variable bias. Some previously published studies of the causes of war and/or the performance of democracies in war may warrant re-examination in light of the influence of the media identified in this study. To the extent that media variables explain some of the variance in war outcomes, that may affect the explanatory role of the material and polity factors included in

research to date. Variables representing the news media should also be considered in future research alongside such familiar factors as troop strength, strategy, regime type and so forth.

The results find no significant interaction between time and the media variables. This finding makes it impossible to precisely determine the direction and magnitude of any modifying effect time may have on the influence of the media. However, the failure to find such interaction suggests that whatever modifying effect time may have, it is probably small and relatively unimportant. Since the research design only includes wars that are underway (as opposed to the crisis onset and escalation phases prior to war), this finding may itself be important. Whatever informing influence is exerted by the media, the failure to find interaction with time suggests that it is of a static rather than dynamic character. That is, the media does not appear to inform leaders in a systematic manner as time passes. This suggests that time-varying informing mechanisms such as the revelation of new information or changing information about cost sensitivity (as in, for example, a leader's changing assessment of events), or changing understanding on the part of the news media are probably not exerting a systematic influence. In an example of the latter mechanism, Baum theorizes that a gap between a leader's private knowledge and the public's understanding narrows over time (Baum and Potter 2008). The fact that no significant interaction could be found between time and the media variables suggests that neither changing information nor changing understanding on the part of the media is exerting a systematic influence on outcomes. Therefore, it can be inferred that the informing influence of the media is static with respect to the passage of time. Future research should investigate the temporal aspect of the media's influence.

The theoretical implications presented here should be considered in future research into the influence of the media on war outcomes. The results and methodological hurdles encountered

in the course of the study suggest a number of issues that should be further explored. An agenda for future research is presented next.

6.2 AGENDA FOR FUTURE RESEARCH

The results of this study suggest an agenda for future research to both clarify the findings presented here and to extend the findings to other domains. Clarifying the findings of the current study entail both methodological improvements and a closer examination of some of the substantive findings, and these are discussed first.

A critical shortcoming of this study is the limited strength of the statistical models. This is manifested throughout the results in relatively wide confidence intervals which make it impossible to distinguish some predictions from others. During the modeling process, it was noted that the existing design is constrained in terms of the finite number of observations (war-years) available from which to draw inferences, and the number of important variables that must be considered, based on theory. The existing design is built on the foundation established in Bennett and Stam (1998) so that the contribution of the media could be examined in the context of all the other factors known to influence war. Future work should build on a new foundation that can maximize inferential leverage and yield more precise findings. Several approaches deserve consideration in the future, including pooled cross-sectional time series, hierarchical linear modeling, and the use of event datasets to examine a large number of observations at a more granular level.

A hierarchical linear model could draw inference from the fact that the dataset consists of war-years which form a hierarchy of states and multi-year wars. Many characteristics of states

such as size, geographical situation, etc. do not change from year to year or even from war to war. On the other hand, some characteristics such as the salience of the issue at hand are specific to a particular dyadic conflict. The distinction between these two classes of information may be useful in extracting additional inference from the empirical record.

A more precise model should facilitate examination of the relative role played by the factors traditionally associated with warfare – soldiers, terrain, equipment, strategy, etc. – and the informational factors that are the subject of the current study. The influence of the news media occurs in the context of these other factors and the current study controls for those. But understanding the relative importance of information and material factors can have both theoretical and policy implications. How does an understanding of the relative role of information affect the interpretation of the historical record?

Future research may be able to draw on event datasets to examine the role of news information at a more granular level while at the same time drawing inference from a large number of cases. Event datasets present the empirical record in terms of the daily interactions between parties, as opposed to the annual aggregation used in this and many other large-N studies. As Gary King has noted, "when the Palestinians launch a mortar attack into Israel, the Israeli army does not wait until the end of the calendar year to react. Yet, most modern data collections are aggregated to the month or year" (King and Lowe 2003, p. 619). Several event datasets are available that code individual events to the precise day they occur, coded according to which actors are involved, and the nature of the action. The data are typically coded by computer from wire service reports such as Reuters. Drawing on such a more granular source of data, the role of the media in crisis onset or in bargaining interactions could perhaps be modeled.

A research design challenge in doing so is that most event datasets[20] are based on media reports and thus pose a circularity problem as regards determining the influence of the media.

The results suggest that the influence of the media is not systematically modified by the passage of time during an ongoing conflict. This finding is puzzling in that presumably the media influences leaders' assessments of relative cost sensitivity during the crisis onset and escalation phases prior to war. Once the parties fail to locate a mutually acceptable settlement and opt for war, it would seem that any static influence the media might exert would have already occurred. Therefore, what would be the ongoing static influence the media might have as leaders engage in the ongoing bargaining and fighting that comprise war? Future research should undertake to more clearly identify the precise direction and magnitude of any interaction between time and the media variables to first confirm the non-findings of this study. Should the lack of interaction be confirmed, theoretical exploration should consider the mechanisms whereby the media could exert an influence that does not vary with time. Finally, empirical testing should be undertaken to test any such theoretical explanations.

The results regarding the influence of media speed require further exploration. The influence of media speed in isolation suggested by the results contradicts the theory advanced in this paper and is quite surprising. Preliminary examinations of the influence of media speed in the context of the other media variables suggest that the surprising findings may be a consequence of the conceptual framework and research design used in this study. However, additional theoretical investigation may be warranted. To the extent that media speed plays a different informing role than what is predicted by the theory, what could that role be? On the other hand, it is possible that media speed does not have an informing function at all and its

[20] See, for example, (King and Lowe 2003) or (Reuveny and Kang 1996).

influence must be understood within a different conceptual framework. Theoretical exploration of these issues should be undertaken followed by appropriate empirical testing to clarify the role of media speed.

The research design used in this study suggests that the influence of the media on the probability of losing is low, but is unable to clearly predict the direction and extent of that influence. Future research should explore the theoretical basis for the apparent difference in media influence on losing as compared to the influence on winning. Formal modeling or other theoretical explorations should examine whether and how the informing influence of media primarily affects the prospects for victory. As noted in the discussion above, it is possible that the differing results are an artifact of the particular research design and dataset used in this study. The relative scarcity of 'lose' outcomes in the dataset undoubtedly contribute to the model's inability to confidently predict how the independent variables influence that outcome. So an exploration of the issue using a different dataset may provide a more satisfactory explanation. In general, though, exploration of the possible theoretical explanations for the difference followed by an empirical examination using an appropriate model and dataset are required to more clearly understand this aspect of the results.

The current study explicitly excludes from consideration the *content* of news reports that are distributed by the international news media. The content of news reports can, generally speaking, contain information about the particular political costs a leader is incurring in pursuit of particular policies as reflected in elite and popular opinion regarding policies. Case studies must be conducted on a range of cases to identify the specific causal mechanisms at work and determine the extent to which they reflect the behaviors predicted by the theory advanced in this dissertation. To the extent possible, such case studies should attempt to identify how the presence

of the media, unfolding events, and the reporting of those events influence the beliefs of leaders engaged in war. Doing so requires access to personal correspondence or private diaries of leaders and a systematic examination of those records within the context of the historical, diplomatic and journalistic history of a given conflict. Case studies should be designed that can isolate the influence of the broad presence of the media from the specific influence of particular reporting on particular events. Such a design should strive to determine the relative contribution of the 'media as the message', as suggested by McLuhan, compared to reporting on specific facts in the context of an ongoing conflict.

Although the availability of public opinion polls in particular states was originally included in the design, data limitations dictated that polling be dropped. The relatively recent emergence and the limited spread of scientific opinion polling mean that this data is available for a relatively few countries. But future research should consider incorporating polling results or news content analysis to facilitate a closer examination of select cases. Such research could more closely identify the causal mechanisms beneath the influence of the news media. It could also identify boundaries within which the phenomenon appears to function, confounding factors that may be at work, and other limitations in the influence of the media.

The results of this study clearly show that the media influences the outcome of wars. The results also suggest how the various dimensions of the media appear to contribute to that influence. However, because the current study was an initial foray into the nature and extent of the media's influence, the research design employed in the current study was not sufficiently focused on the development of critical tests regarding the media's influence. However, with the results of the current study in hand, future research should seek to design and conduct critical

tests that can clearly support or reject competing theoretical explanations for the influence of the media.

In addition to future research designed to clarify the findings, future research should also be undertaken that extends the findings of this study to other domains. The current study is limited to the examination of wars that occur between 1823 and 1990. The information environment surrounding interstate wars has clearly evolved in the past 20 years and should be examined. A critical first step is to collect data on the emergence of the media over the past two decades in order to determine whether recent shifts in the media landscape affect the findings of the current study. Further research should employ one or more of the research techniques touched on below to examine this more recent period. Both media speeds and media types have continued to advance as broadcast television has given way to cable and satellite distribution as well as the ubiquity of the internet. The relative roles of media speed and media type identified in the current study should definitely be explored in the context of the contemporary environment. Furthermore, such research should consider whether the changing international scene since the end of the Cold War influences the role of the media.

The international news media is conceived in the current study as an outside channel of information which complements the fighting and negotiations that comprise war. Slantchev (2004) has proposed that both media and intelligence-gathering perform similar functions in this regard. However, unlike the international news media, clandestine collection of intelligence has been a feature of the international political landscape for centuries. Examination of the role of intelligence-gathering must begin by clearly defining the qualitative and quantitative variation in the norms, practices and techniques of the field over some period of time. Such variation could

then be examined to identify and test the extent to which intelligence is linked to war outcomes in the fashion that the media appears to be.

Future research should consider the role of the media during crisis onset and escalation. Whereas the current study only examines the role of the media in the outcome of wars, the media likely also plays a role in the exchange of threats and demands prior to the use of force. Research should consider how the informing influence of the media identified in this study affects the exchanges between leaders during crisis information be conducted using a dataset. Exploration of the findings using database such as MIDS could accomplish this goal. Another possible avenue for exploring the crisis onset phase could be the use of an event dataset which captures the detailed daily exchanges between leaders that occur through a variety of channels.

Policy implications flowing from the results of this study are discussed next.

6.3 POLICY IMPLICATIONS

Observers of democracy have long debated the proper role for the public in matters of foreign policy. Commenting on the young American republic, de Tocqueville anticipated that democracies would face difficulty conducting foreign policy. He predicted that “defects inherent in democratic institutions are brought to light in the conduct of foreign affairs.” But he also observed that the “constitution entrusts the permanent direction of the external interests of the nation to the president and the senate which tends in some degree to detach foreign policy from the direct control of the people” (de Tocqueville 1839, p. 229). Many contemporary leaders and commentators share de Tocqueville’s apprehension about robust public debates and their

widespread publication via the news media. According to this view, media reports about such debates provide 'aid and comfort to the enemy.'

But the results of this study suggest that states with an advanced, independent news media may have a *higher probability of winning* the wars they initiate. The probability of winning is higher for democracies, and becomes higher still, the more democratic the type government. The influence of the media on the probability of winning appears to be considerable, on the same order of magnitude as such known factors as troop strength, terrain and choice of strategy.

The results of this study suggest that the open debate itself contributes to the prospects for success in war, possibly by both constraining domestic leaders and by enhancing the credibility of leaders' statements of resolve. The results are in concert with Ambrose' argument that "secrecy and surprise are the enemies of democracy; open and prolonged debate is the great power of democracy" (Ambrose 1991, p. 136).

The findings of this dissertation represent an initial foray into examining the influence of the media on war outcomes. As such, it is premature to drive policy based on the findings. Nevertheless, there are important policy implications flowing from the findings.

A general implication of these results for democratic leaders is that while media reporting about criticism of policies may be unwelcome, uncomfortable, and costly in domestic political terms, it may at the same time serve an important role in constraining the actions and threats undertaken by domestic leaders and/or in helping to credibly communicate resolve to enemy leaders.

More specifically, the conventional wisdom that the media negatively influences the prospects for victory across the board appears to be unsubstantiated. To the extent that the

conventional view is deeply embedded in the leadership and operations of important institutions of government and society, it is likely that a wide variety of policies may exist that unquestioningly hamper the function of the media where national security is concerned. Therefore, an initial policy priority is to survey the formal and informal policies that curb the effective function of the media as a precursor to determining how such policies should change.

While examining the range of policies that may limit the functioning of the press, it must be borne in mind that the findings of this dissertation pertain to the signaling of relative strength and resolve at the strategic level by leaders facing one another over issues and wars. At the same time the media is apparently participating in such strategic signaling, it is also motivated to uncover and report tactical details of war-fighting such as troop movements, overall capacities, and the like. The empirical record is full of examples of such revelation, including *The Times of* London reporting on troop conditions and movements during the Crimean War. While the revelation of such details is beyond the specific focus of this study, it seems intuitively obvious that revealing such details may pose important perils to the prospects for victory. How a press motivated to gather and distribute news reports about wars distinguishes the strategic function from the tactical one is a daunting challenge. Further research to determine where the strategic signaling leaves off and revealing tactical details picks up must be a priority so that policy priorities can be shaped with both dynamics in mind.

The strategic impact of the media as suggested by the findings here must be considered against the backdrop of a changing media landscape. Several important changes are underway in the media landscape that should be considered. Since the beginning of the emergence of the media, the balance of power between states and the media has been shifting, and today is no different. At the same time new technologies appear to give the press new means of gathering

and distributing news despite state preferences to the contrary, those same technologies are often themselves under the control of states. How the balance between states and the media unfolds has implications for the existence of a robust media that may in unappreciated ways contribute to foreign policy success.

The balance of power between states and the media is best observed in shiting press freedoms around the world. According to Freedom House's Freedom of the Press index (Freedom 2003), after two decades of progress, press freedom is now in decline in almost every part of the world. Only 17 percent of the world's citizens live in countries that enjoy a free press. In the rest of the world, governments as well as non-state actors control the viewpoints that reach citizens and brutally repress independent voices who aim to promote accountability, good governance, and economic development. The negative trend is exemplified by recent Iranian assault on press freedoms, Chinese internet restrictions and the rise of so-called 'libel tourism' wherein wealthy individuals from repressive regions use the permissive British courts to silence critics. A survey conducted over 15 years ago by the Pew Center (Pew Charitable Trusts. Office of the 1994) suggests that public support for press freedoms – even among developed countries – has been mixed for some time. Surveying the public in eight countries of North America and Western Europe, Pew found that the public generally credit the news media for its positive overall impact. Large majorities of respondents reported that the press helps their democracies and exerts a good influence on their societies. But the survey also found surprising levels of public support for government restrictions on the press. The abstract concept of censorship was rejected by most North Americans as well as the French, Germans, Italians, Spaniards and British. But when questioned about specific types of stories, "respondents in all nations surveyed favored limits on press freedom for reasons ranging from protecting military secrets to reducing

portrayals of sex and violence in the media." (Times Mirror Center for the and the 1994) Restrictions on press freedom aimed at discouraging terrorism drew strong majorities in seven of the eight countries. Similarly, strong majorities in most of the countries surveyed favored censorship to protect military secrets. These attitudes are undoubtedly influenced by the conventional wisdom that is at the heart of this dissertation. But nevertheless, they reflect a longstanding permissive attitude on the part of the public toward increased state control over the media.

States in general, and the US government in particular, likely take advantage of permissive public attitudes toward press restrictions. Within the United States, the Freedom of Information Act was passed in 1966 to ensure public access to government documents. In recent decades, FOIA has come under attack by successive administrations seeking to conceal information from historians and the public in general. The National Security Archive, a, independent and non-governmental research institute and library located at The George Washington University (National Security, George Washington University. Institute for European, and Eurasian 2008), reports that the rate of decisions to classify documents has skyrocketed from around 7 million documents classified in 2001 to nearly 25 million documents classified in 2007. Similarly, rates of declassification of document have fallen from a peak of over 250 million pages declassified per year in the immediate aftermath of the Cold War to around 25 million pages in 2007. Underlying the rise in secrecy is a revision of the Executive Order on Classified National Security Information in 2003 that eliminates the commitment to open government that formerly guided declassification decisions and eliminates the bias toward declassification when officials are in doubt. Beyond formal means of discouraging declassification, the National Security Archives points to a trend toward defunding the

declassification and open records apparatus within the federal government, effectively delaying by years or decades the processing of public requests (National Security, George Washington University. Institute for European, and Eurasian 2008). To the extent that openness contributes to the functions performed by the media that are the subject of this dissertation, these trends regarding records declassification suggest that the media contribution to leaders' signaling are likely to be hindered for some time to come.

In addition to shifting balance of power between states and the media, the very nature of the media is changing in profound ways with the atomization of large media conglomerates and the rise of so-called citizen journalism in the form of blogs, twitter feeds and so forth. For most of the past two centuries, media conglomerates performed a public good by investing in and adhering in varying degrees to journalistic standards designed to promote accurate, responsible reporting. The smaller, more nimble news start-ups of today do not necessarily share the lofty goals embodied in such standards and may not be in an economic position to invest in them regardless. A rare instance counter to the overall trend is the recent decision by Google to pull search operations out of mainland China in response to interference and censorship by the state (O'Rourke, Harris, and Ogilvy 2007). To the extent Google is able to maintain its stance in the face of government and competitive pressures, it is a rare bright spot in an otherwise largely negative trend regarding the balance of power between the media and states.

6.4 CONCLUDING REMARKS

This dissertation has examined the question: To what extent does the international news media influence interstate wars? It considers the longstanding charge that media reports of public debates about foreign policy provide 'aid and comfort to the enemy.'

New theory is proposed that addresses this policy problem facing democracies, and also addresses gaps in the theoretical literature on the causes of war. The theory advanced here argues that the presence of the international news media should influence the outcome of wars by providing an additional channel through which information about leaders' cost sensitivity is revealed and by reciprocally influencing the beliefs and behavior of leaders and their foreign adversaries in the conduct of wars. Novel variables representing five major phases in the emergence of the international news media are defined. Original research is conducted using primary and secondary sources to characterize the media by year in individual states. The novel media variables are combined with variables from other studies to create a dataset spanning 90 interstate wars involving 51 different states from 1823 through 1990. Hypotheses based on the theory are tested using a multinomial logistic regression model.

The findings show partial support for the theory in that the type of media in a war initiator state is strongly and significantly associated with a higher probability of winning. Unexpected findings regarding the influence of media speed on the probability of winning, and a failure to find a relationship between media and the probability of losing require further investigation. Overall, however, the presence of the international news media appears to influence the outcome of interstate wars.

The results have important implications for future theoretical research as well as for policy choices regarding the proper role of domestic debates and media reporting thereof.

Additional research is required to confirm the findings, examine the unexpected findings, and to examine the relevance of the findings in other eras and other phases of war. Deeply rooted assumptions within society that media reporting on wars conflicts with national security interests must be revisited as part of an examination of policy implications of the findings.

As for the question that initially inspired this research, this dissertation finds, somewhat in contradiction to the conventional wisdom, that states with a robust, independent media appear to have a *higher* probability of winning the wars they initiate.

Appendix A

POPULATION OF CASES

Table 7 - 1. Population of Cases

Case #	Year Start	State A	State B	Year End	# of Observations (War-Years)
1	1823	France	Spain	1823	1
2	1828	Russia	Turkey	1829	2
3	1846	United States of America	Mexico	1848	3
4	1848	Italy	Austria-Hungary	1849	2
5	1848	Germany	Denmark	1848	1
6	1849	France	Papal States	1849	1
7	1851	Brazil	Argentina	1852	2
8	1853	Russia	Turkey	1856	4
9	1856	United Kingdom	Iran	1857	2
10	1859	Austria-Hungary	France	1859	1
11	1859	Spain	Morocco	1860	2
12	1860	Italy	Papal States	1860	1
13	1860	Italy	Two Sicilies	1860	1
14	1862	France	Mexico	1867	6
15	1863	Colombia	Ecuador	1863	Dropped
16	1864	Germany	Austria-Hungary	1864	Dropped
17	1864	Paraguay	Brazil	1870	7
18	1865	Chile	Spain	1866	2
19	1866	Germany	Austria-Hungary	1866	1
20	1870	France	Germany	1871	2
21	1877	Russia	Turkey	1877	1
22	1879	Chile	Peru	1883	5

Table 7-1. Population of Cases (continued)

Case #	Year Start	State A	State B	Year End	# of Observations (War-Years)
23	1883	France	China	1885	3
24	1885	Guatemala	El Salvador	1885	1
25	1885	Yugoslavia	Bulgaria	1885	Dropped
26	1894	Japan	China	1895	2
27	1897	Greece	Turkey	1897	1
28	1898	United States of America	Spain	1898	1
29	1900	United Kingdom	China	1901	2
30	1904	Japan	Russia	1905	2
31	1906	Guatemala	El Salvador	1906	1
32	1907	Nicaragua	El Salvador	1907	1
33	1909	Spain	Morocco	1909	1
34	1911	Italy	Turkey	1912	2
35	1912	Bulgaria	Turkey	1913	2
36	1913	Turkey	Bulgaria	1913	1
37	1914	Germany	Belgium	1914	1
38	1914	Germany	Russia	1917	4
39	1914	Germany	United Kingdom	1918	5
40	1919	Czechoslovakia	Hungary	1919	1
41	1919	Greece	Turkey	1922	4
42	1920	Poland	Russia	1920	1
43	1929	Russia	China	1929	1
44	1931	Japan	China	1933	3
45	1932	Paraguay	Bolivia	1935	4
46	1935	Italy	Ethiopia	1936	2
47	1937	Japan	China	1945	9
48	1938	Russia	Japan	1938	1
49	1938	Germany	Czechoslovakia	1938	1
50	1938	Germany	Austria	1938	1
51	1939	Germany	Poland	1939	1
52	1939	Japan	Russia	1939	1
53	1939	Russia	Finland	1939	1
54	1940	Germany	Belgium	1940	1
55	1940	Germany	Netherlands	1940	1
56	1940	Germany	Denmark	1940	1
57	1940	Germany	Norway	1940	1
58	1940	Germany	France	1940	1
59	1940	Italy	Greece	1940	1

Table 7-1. Population of Cases (continued)

Case #	Year Start	State A	State B	Year End	# of Observations (War-Years)
60	1940	United Kingdom	Germany	1945	6
61	1940	Thailand	France	1940	1
62	1941	Japan	United States of America	1945	5
63	1941	Germany	Russia	1945	5
64	1941	Germany	Yugoslavia	1941	1
65	1941	Germany	Greece	1941	1
66	1946	Vietnam	France	1954	9
67	1947	Pakistan	India	1948	2
68	1948	Egypt	Israel	1948	1
69	1950	North Korea	United States of America	1953	4
70	1956	Russia	Hungary	1956	1
71	1956	United Kingdom	Egypt	1956	1
72	1962	China	India	1962	1
73	1963	Vietnam	Republic of Vietnam	1973	11
74	1965	India	Pakistan	1965	1
75	1967	Israel	Egypt	1967	1
76	1969	El Salvador	Honduras	1969	1
77	1970	Egypt	Israel	1970	1
78	1971	India	Pakistan	1971	1
79	1973	Egypt	Israel	1973	1
80	1974	Turkey	Cyprus	1974	1
81	1975	Vietnam	Republic of Vietnam	1975	1
82	1977	Vietnam	Cambodia	1989	13
83	1977	Somalia	Ethiopia	1978	Dropped
84	1978	Uganda	Tanzania	1979	Dropped
85	1979	China	Vietnam	1979	1
86	1980	Iraq	Iran	1988	9
87	1982	Argentina	United Kingdom	1982	1
88	1982	Israel	Syria	1982	1
89	1985	China	Vietnam	1990	6
90	1986	Vietnam	China	1987	2
			Total Number Observations:		**193**

Appendix B

MODEL DEVELOPMENT

This appendix presents the analysis required to develop a model of the influence of the international news media on war outcomes. Model development is guided first and foremost by theory but also draws on modeling recommendations from Hosmer and others. Model development proceeds in four stages. First, a baseline model drawing on Bennett & Stam is established representing the current state of knowledge about the influences on war outcomes. Second, the media variables developed in this study are simply added to Bennett & Stam's model to examine their contributions. Third, variables from Bennett & Stam's existing study are selectively chosen to include as controls in a model that can more effectively test the hypotheses. Fourth, media variables (both main-effect and interaction-effects) are added to the control variables to yield a model suitable for the purposes of this study. At each stage of model development, variables are selected for inclusion based on theory and on their contributions to the strength of the model. The process proceeds in an iterative fashion, adding and removing variables, assessing the fit of the model, and so on until a suitable model is arrived at. The first step is an examination of the variables in a univariable context.

B.1 UNIVARIABLE ANALYSIS

Scatterplots are created of each variable to identify potential separation problems, transformations required, etc. Scatterplot output is omitted in the interest of brevity. Following Hosmer (Hosmer and Lemeshow 2004), all variables are first examined on a univariate basis, starting with nominal variables:

Nominal Variables

Variables from Bennett & Stam (1998)

```
. tab outcome winstr, chi2 lrchi2

           |     winstr
   outcome |         0          1 |     Total
-----------+----------------------+----------
         0 |       101          8 |       109
         1 |        37         13 |        50
         2 |        15          0 |        15
         3 |        19          0 |        19
-----------+----------------------+----------
     Total |       172         21 |       193

          Pearson chi2(3) =  17.3476   Pr = 0.001
 likelihood-ratio chi2(3) =  18.2962   Pr = 0.000
```

```
. tab outcome losestr, chi2 lrchi2

           |     losestr
   outcome |         0          1 |     Total
-----------+----------------------+----------
         0 |        83         26 |       109
         1 |        49          1 |        50
         2 |        13          2 |        15
         3 |        12          7 |        19
-----------+----------------------+----------
     Total |       157         36 |       193

          Pearson chi2(3) =  15.5034   Pr = 0.001
 likelihood-ratio chi2(3) =  19.3663   Pr = 0.000
```

```
. tab outcome drawstr, chi2 lrchi2

           |     drawstr
   outcome |         0          1 |     Total
-----------+----------------------+----------
         0 |        34         75 |       109
         1 |        14         36 |        50
         2 |         2         13 |        15
         3 |         7         12 |        19
-----------+----------------------+----------
     Total |        57        136 |       193

          Pearson chi2(3) =   2.5800   Pr = 0.461
 likelihood-ratio chi2(3) =   2.8666   Pr = 0.413
```

```
. tab outcome salient, chi2 lrchi2

           |         salient
   outcome |         0          1 |     Total
-----------+----------------------+----------
         0 |        11         98 |       109
         1 |         7         43 |        50
         2 |         3         12 |        15
         3 |         4         15 |        19
-----------+----------------------+----------
     Total |        25        168 |       193

          Pearson chi2(3) =   2.6061   Pr = 0.456
 likelihood-ratio chi2(3) =   2.4310   Pr = 0.488
```

```
. tab outcome saliento, chi2 lrchi2

           |        saliento
   outcome |         0          1 |     Total
-----------+----------------------+----------
         0 |         9        100 |       109
         1 |         7         43 |        50
         2 |         3         12 |        15
         3 |         2         17 |        19
-----------+----------------------+----------
     Total |        21        172 |       193

          Pearson chi2(3) =   2.5644   Pr = 0.464
 likelihood-ratio chi2(3) =   2.3654   Pr = 0.500
```

This analysis reveals a numerical issue with the variable *winstr*. There are zero cases of *winstr*=1 for outcome=2 or outcome=3, which is a form of separation. This issue must be addressed during the modeling process.

Media variables

```
. tabulate outcome2 mavail_i, chi2 lrchi2

           |        MAvail_I
  outcome2 |         0          1 |     Total
-----------+----------------------+----------
  Continue |         1        108 |       109
 Init Win  |         1         49 |        50
      Draw |         0         15 |        15
 Init Los  |         0         19 |        19
-----------+----------------------+----------
     Total |         2        191 |       193

          Pearson chi2(3) =   0.8239   Pr = 0.844
 likelihood-ratio chi2(3) =   1.0800   Pr = 0.782
```

```
. tabulate outcome2 mavail_t, chi2 lrchi2

           |        MAvail_T
  outcome2 |         0          1 |     Total
-----------+----------------------+----------
  Continue |        10         99 |       109
 Init Win  |         4         46 |        50
      Draw |         0         15 |        15
 Init Los  |         2         17 |        19
-----------+----------------------+----------
     Total |        16        177 |       193

          Pearson chi2(3) =   1.5985   Pr = 0.660
 likelihood-ratio chi2(3) =   2.8264   Pr = 0.419
```

```
. tab outcome mtype_irtv, chi2 lrchi2
```

outcome	Mtype_IRTV 1	2	3	4	5	Total
0	**9**	**6**	**32**	**38**	**24**	**109**
1	**3**	**9**	**15**	**18**	**5**	**50**
2	**0**	**3**	**1**	**7**	**4**	**15**
3	**5**	**1**	**4**	**6**	**3**	**19**
Total	**17**	**19**	**52**	**69**	**36**	**193**

Pearson chi2(**12**) = **22.6873** Pr = **0.031**
likelihood-ratio chi2(**12**) = **22.4794** Pr = **0.032**

```
. tab outcome mtype_trtv, chi2 lrchi2
```

outcome	Mtype_TRTV 1	2	3	4	5	Total
0	**13**	**8**	**27**	**36**	**25**	**109**
1	**11**	**7**	**10**	**16**	**6**	**50**
2	**0**	**3**	**1**	**5**	**6**	**15**
3	**4**	**1**	**5**	**6**	**3**	**19**
Total	**28**	**19**	**43**	**63**	**40**	**193**

Pearson chi2(**12**) = **15.9468** Pr = **0.194**
likelihood-ratio chi2(**12**) = **17.8803** Pr = **0.119**

```
. tabulate outcome   poll_i, chi2 lrchi2
```

outcome	Poll_I 0	1	Total
0	**104**	**5**	**109**
1	**46**	**4**	**50**
2	**14**	**1**	**15**
3	**18**	**1**	**19**
Total	**182**	**11**	**193**

Pearson chi2(**3**) = **0.7761** Pr = **0.855**
likelihood-ratio chi2(**3**) = **0.7400** Pr = **0.864**

```
. tabulate outcome   poll_t, chi2 lrchi2
```

outcome	Poll_T 0	1	Total
0	**102**	**7**	**109**
1	**46**	**4**	**50**
2	**14**	**1**	**15**
3	**16**	**3**	**19**
Total	**178**	**15**	**193**

Pearson chi2(**3**) = **2.0102** Pr = **0.570**
likelihood-ratio chi2(**3**) = **1.6663** Pr = **0.644**

```
. tab outcome  mindep_t, chi2 lrchi2
```

outcome	Mindep_T 1	2	3	Total
0	**66**	**25**	**18**	**109**
1	**29**	**17**	**4**	**50**
2	**8**	**6**	**1**	**15**
3	**10**	**3**	**6**	**19**
Total	**113**	**51**	**29**	**193**

Pearson chi2(**6**) = **9.6733** Pr = **0.139**
likelihood-ratio chi2(**6**) = **9.2841** Pr = **0.158**

```
. tab outcome  mindep_i, chi2 lrchi2
```

outcome	Mindep_I 1	2	3	Total
0	**82**	**24**	**3**	**109**
1	**29**	**20**	**1**	**50**
2	**9**	**5**	**1**	**15**
3	**12**	**6**	**1**	**19**
Total	**132**	**55**	**6**	**193**

Pearson chi2(**6**) = **7.0153** Pr = **0.319**
likelihood-ratio chi2(**6**) = **6.7406** Pr = **0.346**

This analysis reveal a numerical issue with the mavail variables – there is complete separation because there are zero instances of *mavail_I*=0 for *outcome*=draw or *outcome*=init lose. There is quasi-complete separation of *mavail_t* in that there are zero instances of *mavail_t*=0 for *outcome*=draw and only two instances for *outcome*=init lose. The separation is so severe that the mavail variables will have to be dropped from any further consideration.

This analysis also suggests that *Poll* cannot be used because it is far too rare among the 193 cases. Thus, it will not be possible to evaluate the influence of polling in this model.

Variables for which p>.25 are candidates for inclusion in a preliminary model. This analysis suggests that *winstr losestr initiator media type, target media type, target media independence* should be considered based on their level of association. Other variables that do not exhibit univariate correlation may nevertheless be considered for inclusion based on theory.

From this point forward, the strategy variables are renamed such that *winstr=Istr_1*, *drawstr=Istr_2*, and *losestr=Istr_3*

Continuous Variables

Next, the univariate analysis continues with an examination of the continuous variables:

Variables from Bennett & Stam (1998)

```
. logit outcome time

Iteration 0:   log likelihood = -132.15368
Iteration 1:   log likelihood = -125.75237
Iteration 2:   log likelihood =  -125.5902
Iteration 3:   log likelihood = -125.58961

Logistic regression                                     Number of obs   =        193
                                                        LR chi2(1)      =      13.13
                                                        Prob > chi2     =     0.0003
Log likelihood = -125.58961                             Pseudo R2       =     0.0497

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        time |  -.0190992    .005833    -3.27   0.001    -.0305316   -.0076668
       _cons |   .2188952   .1991624     1.10   0.272     -.171456    .6092464
------------------------------------------------------------------------------

. mlogit outcome time, nolog

Multinomial logistic regression                         Number of obs   =        193
                                                        LR chi2(3)      =      34.65
                                                        Prob > chi2     =     0.0000
Log likelihood = -194.85105                             Pseudo R2       =     0.0817

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
        time |  -.0515893   .0125926    -4.10   0.000    -.0762704   -.0269083
       _cons |   .1583867   .2426685     0.65   0.514    -.3172349    .6340082
-------------+----------------------------------------------------------------
2            |
        time |     .00628   .0073675     0.85   0.394    -.0081601      .02072
       _cons |  -2.222007   .4093449    -5.43   0.000    -3.024309   -1.419706
-------------+----------------------------------------------------------------
3            |
        time |  -.0147131   .0098865    -1.49   0.137    -.0340904    .0046641
       _cons |  -1.346069     .33761    -3.99   0.000    -2.007772   -.6843653
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome  rterrain

Iteration 0:   log likelihood = -132.15368
Iteration 1:   log likelihood =  -132.1185
Iteration 2:   log likelihood =  -132.1185

Logistic regression                                     Number of obs   =        193
                                                        LR chi2(1)      =       0.07
                                                        Prob > chi2     =     0.7908
Log likelihood =  -132.1185                             Pseudo R2       =     0.0003

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    rterrain |   .1841342   .6944888     0.27   0.791    -1.177039    1.545307
       _cons |  -.3270462   .2901874    -1.13   0.260    -.8958029    .2417106
------------------------------------------------------------------------------

. mlogit outcome rterrain, nolog

Multinomial logistic regression                         Number of obs   =        193
                                                        LR chi2(3)      =       9.34
                                                        Prob > chi2     =     0.0251
Log likelihood = -207.50728                             Pseudo R2       =     0.0220

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
    rterrain |   .2747819   .8291152     0.33   0.740    -1.350254    1.899818
       _cons |  -.8790875   .3477119    -2.53   0.011     -1.56059   -.1975848
-------------+----------------------------------------------------------------
2            |
    rterrain |   3.240562    1.55002     2.09   0.037     .2025784    6.278547
       _cons |  -3.349543   .7764558    -4.31   0.000    -4.871368   -1.827717
-------------+----------------------------------------------------------------
3            |
    rterrain |  -2.125548   1.218536    -1.74   0.081    -4.513834    .2627388
       _cons |  -1.085656   .4231824    -2.57   0.010    -1.915078   -.2562338
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome  sumpop, nolog

Logistic regression                                     Number of obs   =        193
                                                        LR chi2(1)      =       1.54
                                                        Prob > chi2     =     0.2141
Log likelihood = -131.38188                             Pseudo R2       =     0.0058

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      sumpop |  -6.75e-07   5.55e-07    -1.22   0.224    -1.76e-06    4.13e-07
       _cons |  -.1247207    .181653    -0.69   0.492     -.480754    .2313125
------------------------------------------------------------------------------

. mlogit outcome  sumpop, nolog

Multinomial logistic regression                         Number of obs   =        193
                                                        LR chi2(3)      =      11.71
                                                        Prob > chi2     =     0.0085
Log likelihood = -206.32342                             Pseudo R2       =     0.0276

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
      sumpop |  -1.50e-06   8.16e-07    -1.83   0.067    -3.10e-06    1.03e-07
       _cons |  -.5120472   .2149947    -2.38   0.017    -.9334291   -.0906654
-------------+----------------------------------------------------------------
2            |
      sumpop |   1.32e-06   7.45e-07     1.77   0.076    -1.39e-07    2.78e-06
       _cons |  -2.375496   .3818789    -6.22   0.000    -3.123965   -1.627027
-------------+----------------------------------------------------------------
3            |
      sumpop |  -2.43e-06   1.55e-06    -1.57   0.117    -5.47e-06    6.10e-07
       _cons |  -1.361416   .3127841    -4.35   0.000    -1.974461   -.7483702
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome  summper, nolog

Logistic regression                                     Number of obs   =        193
                                                        LR chi2(1)      =       0.94
                                                        Prob > chi2     =     0.3332
Log likelihood = -131.68552                             Pseudo R2       =     0.0035

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     summper |  -.0000375   .0000395    -0.95   0.342     -.000115    .0000399
       _cons |   -.156187   .1808534    -0.86   0.388    -.5106531    .1982791
------------------------------------------------------------------------------

. mlogit outcome  summper, nolog

Multinomial logistic regression                         Number of obs   =        193
                                                        LR chi2(3)      =       1.79
                                                        Prob > chi2     =     0.6177
Log likelihood = -211.28229                             Pseudo R2       =     0.0042

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
     summper |  -.0000584    .000051    -1.14   0.252    -.0001583    .0000416
       _cons |  -.6247117    .212788    -2.94   0.003    -1.041768    -.207655
-------------+----------------------------------------------------------------
2            |
     summper |  -.0000462   .0000813    -0.57   0.570    -.0002055    .0001131
       _cons |   -1.85747   .3417646    -5.43   0.000    -2.527316   -1.187623
-------------+----------------------------------------------------------------
3            |
     summper |   7.79e-06   .0000592     0.13   0.895    -.0001082    .0001237
       _cons |  -1.771259    .311543    -5.69   0.000    -2.381872   -1.160646
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome bofadj, nolog

Logistic regression                               Number of obs   =        193
                                                  LR chi2(1)      =      11.36
                                                  Prob > chi2     =     0.0008
Log likelihood = -126.47341                       Pseudo R2       =     0.0430

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      bofadj |   1.818585   .5534192     3.29   0.001      .733903    2.903266
       _cons |  -1.239266   .3371708    -3.68   0.000    -1.900108   -.5784232
------------------------------------------------------------------------------

. mlogit outcome bofadj, nolog

Multinomial logistic regression                   Number of obs   =        193
                                                  LR chi2(3)      =      22.25
                                                  Prob > chi2     =     0.0001
Log likelihood = -201.05311                       Pseudo R2       =     0.0524

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
      bofadj |   2.989004   .7003761     4.27   0.000     1.616292    4.361716
       _cons |  -2.507848   .4692842    -5.34   0.000    -3.427628   -1.588068
-------------+----------------------------------------------------------------
2            |
      bofadj |   1.022644     1.024     1.00   0.318    -.9843601    3.029648
       _cons |  -2.502677   .6141368    -4.08   0.000    -3.706363   -1.298991
-------------+----------------------------------------------------------------
3            |
      bofadj |  -.2590629   .9540056    -0.27   0.786     -2.12888    1.610754
       _cons |  -1.627083   .5013128    -3.25   0.001    -2.609638   -.6445281
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome distance, nolog

Logistic regression                               Number of obs   =        193
                                                  LR chi2(1)      =       1.80
                                                  Prob > chi2     =     0.1793
Log likelihood = -131.25199                       Pseudo R2       =     0.0068

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    distance |  -.0000832   .0000637    -1.31   0.191    -.0002081    .0000416
       _cons |   -.112346   .1823884    -0.62   0.538    -.4698207    .2451287
------------------------------------------------------------------------------

. mlogit outcome distance, nolog

Multinomial logistic regression                   Number of obs   =        193
                                                  LR chi2(3)      =       2.19
                                                  Prob > chi2     =     0.5346
Log likelihood = -211.08284                       Pseudo R2       =     0.0052

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
    distance |  -.0001047   .0000806    -1.30   0.194    -.0002627    .0000532
       _cons |  -.5984151   .2143674    -2.79   0.005    -1.018567   -.1782628
-------------+----------------------------------------------------------------
2            |
    distance |  -.0000242   .0001106    -0.22   0.827    -.0002409    .0001926
       _cons |   -1.93617   .3458537    -5.60   0.000    -2.614031   -1.25831
-------------+----------------------------------------------------------------
3            |
    distance |  -.0000855   .0001158    -0.74   0.461    -.0003125    .0001415
       _cons |  -1.595201   .3107333    -5.13   0.000    -2.204227   -.9861749
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome repress, nolog

Logistic regression                               Number of obs   =        193
                                                  LR chi2(1)      =       0.75
                                                  Prob > chi2     =     0.3872
Log likelihood =  -131.7798                       Pseudo R2       =     0.0028

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     repress |  -.0927345   .1073119    -0.86   0.388     -.303062    .1175929
       _cons |   .0892123    .429148     0.21   0.835    -.7519023    .9303269
------------------------------------------------------------------------------

. mlogit outcome repress, nolog

Multinomial logistic regression                   Number of obs   =        193
                                                  LR chi2(3)      =       3.47
                                                  Prob > chi2     =     0.3245
Log likelihood = -210.44047                       Pseudo R2       =     0.0082

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
     repress |  -.1504313   .1250157    -1.20   0.229    -.3954576     .094595
       _cons |  -.2199918   .4898969    -0.45   0.653    -1.180172    .7401885
-------------+----------------------------------------------------------------
2            |
     repress |   .2162703   .2289632     0.94   0.345    -.2324893    .6650299
       _cons |  -2.855714   .9928956    -2.88   0.004    -4.801754   -.9096748
-------------+----------------------------------------------------------------
3            |
     repress |  -.1554364   .1799786    -0.86   0.388    -.5081881    .1973152
       _cons |    -1.1697   .6965372    -1.68   0.093    -2.534888     .195488
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome represso, nolog

Logistic regression                               Number of obs   =        193
                                                  LR chi2(1)      =       0.00
                                                  Prob > chi2     =     0.9917
Log likelihood = -132.15362                       Pseudo R2       =     0.0000

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    represso |    .001132   .1092417     0.01   0.992    -.2129778    .2152419
       _cons |  -.2643387   .3950998    -0.67   0.503     -1.03872    .5100426
------------------------------------------------------------------------------

. mlogit outcome repress, nolog

Multinomial logistic regression                   Number of obs   =        193
                                                  LR chi2(3)      =       3.47
                                                  Prob > chi2     =     0.3245
Log likelihood = -210.44047                       Pseudo R2       =     0.0082

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
     repress |  -.1504313   .1250157    -1.20   0.229    -.3954576     .094595
       _cons |  -.2199918   .4898969    -0.45   0.653    -1.180172    .7401885
-------------+----------------------------------------------------------------
2            |
     repress |   .2162703   .2289632     0.94   0.345    -.2324893    .6650299
       _cons |  -2.855714   .9928956    -2.88   0.004    -4.801754   -.9096748
-------------+----------------------------------------------------------------
3            |
     repress |  -.1554364   .1799786    -0.86   0.388    -.5081881    .1973152
       _cons |    -1.1697   .6965372    -1.68   0.093    -2.534888     .195488
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome democ, nolog

Logistic regression                                     Number of obs   =        193
                                                        LR chi2(1)      =       0.98
                                                        Prob > chi2     =     0.3218
Log likelihood = -131.66293                             Pseudo R2       =     0.0037

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       democ |   .0456984   .0461539     0.99   0.322    -.0447617    .1361584
       _cons |  -.3742622   .1859382    -2.01   0.044    -.7386944     -.00983
------------------------------------------------------------------------------

. mlogit outcome democ, nolog

Multinomial logistic regression                         Number of obs   =        193
                                                        LR chi2(3)      =       2.89
                                                        Prob > chi2     =     0.4087
Log likelihood = -210.73055                             Pseudo R2       =     0.0068

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
       democ |   .0801959   .0524603     1.53   0.126    -.0226245    .1830163
       _cons |  -.9933061   .2260062    -4.40   0.000     -1.43627   -.5503421
-------------+----------------------------------------------------------------
2            |
       democ |  -.0408975   .0975761    -0.42   0.675    -.2321432    .1503482
       _cons |  -1.897796   .3353673    -5.66   0.000    -2.555104   -1.240488
-------------+----------------------------------------------------------------
3            |
       democ |   .0084616   .0813201     0.10   0.917    -.1509228     .167846
       _cons |  -1.766431   .3128149    -5.65   0.000    -2.379537   -1.153325
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome democo, nolog

Logistic regression                                     Number of obs   =        193
                                                        LR chi2(1)      =       0.68
                                                        Prob > chi2     =     0.4090
Log likelihood = -131.81279                             Pseudo R2       =     0.0026

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      democo |   .0331793   .0401593     0.83   0.409    -.0455315     .11189
       _cons |  -.3505871   .1821916    -1.92   0.054     -.707676    .0065018
------------------------------------------------------------------------------

. mlogit outcome democo, nolog

Multinomial logistic regression                         Number of obs   =        193
                                                        LR chi2(3)      =       1.43
                                                        Prob > chi2     =     0.6980
Log likelihood = -211.45998                             Pseudo R2       =     0.0034

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
      democo |    .016582   .0478856     0.35   0.729     -.077272    .1104361
       _cons |  -.8225371   .2126244    -3.87   0.000    -1.239273    -.405801
-------------+----------------------------------------------------------------
2            |
      democo |   .0269744   .0752428     0.36   0.720    -.1204988    .1744476
       _cons |  -2.055402   .3470062    -5.92   0.000    -2.735522   -1.375283
-------------+----------------------------------------------------------------
3            |
      democo |    .076873    .063538     1.21   0.226    -.0476592    .2014053
       _cons |  -1.979234   .3299241    -6.00   0.000    -2.625873   -1.332594
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome surpdiff, nolog

Logistic regression                                     Number of obs   =        193
                                                        LR chi2(1)      =       6.31
                                                        Prob > chi2     =     0.0120
Log likelihood =  -129.0006                             Pseudo R2       =     0.0239

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    surpdiff |   6.619235   2.855776     2.32   0.020     1.022017    12.21645
       _cons |  -.2668288   .1475437    -1.81   0.071    -.5560091    .0223516
------------------------------------------------------------------------------

. mlogit outcome surpdiff, nolog

Multinomial logistic regression                         Number of obs   =        193
                                                        LR chi2(3)      =      15.32
                                                        Prob > chi2     =     0.0016
Log likelihood = -204.51415                             Pseudo R2       =     0.0361

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
    surpdiff |   11.42061   3.538621     3.23   0.001     4.485041    18.35618
       _cons |  -.8546237   .1799979    -4.75   0.000    -1.207413   -.5018343
-------------+----------------------------------------------------------------
2            |
    surpdiff |  -.1541675   5.716732    -0.03   0.978    -11.35876    11.05042
       _cons |   -1.98469   .2803361    -7.08   0.000    -2.534139   -1.435242
-------------+----------------------------------------------------------------
3            |
    surpdiff |   -1.78524   5.023244    -0.36   0.722    -11.63062    8.060137
       _cons |  -1.766477   .2564553    -6.89   0.000     -2.26912   -1.263834
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

Media variables:

```
. logit outcome  mspeed_iA, nolog

Logistic regression                                     Number of obs   =        193
                                                        LR chi2(1)      =       2.17
                                                        Prob > chi2     =     0.1410
Log likelihood = -131.07038                             Pseudo R2       =     0.0082

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   mspeed_iA |  -.0197396   .0134535    -1.47   0.142    -.0461079    .0066287
       _cons |    .119487   .2959321     0.40   0.686    -.4605294    .6995033
------------------------------------------------------------------------------

. mlogit outcome  mspeed_iA, nolog

Multinomial logistic regression                         Number of obs   =        193
                                                        LR chi2(3)      =       5.00
                                                        Prob > chi2     =     0.1715
Log likelihood = -209.67408                             Pseudo R2       =     0.0118

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
   mspeed_iA |  -.0274335   .0157386    -1.74   0.081    -.0582807    .0034137
       _cons |  -.2636384   .3349405    -0.79   0.431    -.9201096    .3928329
-------------+----------------------------------------------------------------
2            |
   mspeed_iA |   .0184518   .0276325     0.67   0.504    -.0357069    .0726106
       _cons |  -2.377889   .6706979    -3.55   0.000    -3.692432   -1.063345
-------------+----------------------------------------------------------------
3            |
   mspeed_iA |  -.0273691   .0226671    -1.21   0.227    -.0717957    .0170575
       _cons |  -1.232327    .472436    -2.61   0.009    -2.158284   -.3063691
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

```
. logit outcome  mspeed_tA, nolog

Logistic regression                               Number of obs   =        193
                                                  LR chi2(1)      =       5.27
                                                  Prob > chi2     =     0.0217
Log likelihood =  -129.5178                       Pseudo R2       =     0.0199

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   mspeed_tA |  -.0310852   .0136844    -2.27   0.023    -.0579061   -.0042643
       _cons |   .2956531    .283496     1.04   0.297    -.2599889    .851295
------------------------------------------------------------------------------

. mlogit outcome  mspeed_tA, nolog

Multinomial logistic regression                   Number of obs   =        193
                                                  LR chi2(3)      =      14.00
                                                  Prob > chi2     =     0.0029
Log likelihood = -205.17597                       Pseudo R2       =     0.0330

------------------------------------------------------------------------------
     outcome |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
   mspeed_tA |   -.048141   .0164197    -2.93   0.003    -.0803231   -.0159589
       _cons |   .0360836   .3159497     0.11   0.909    -.5831664    .6553337
-------------+----------------------------------------------------------------
2            |
   mspeed_tA |    .037794   .0297609     1.27   0.204    -.0205364    .0961243
       _cons |  -2.798913   .7378213    -3.79   0.000    -4.245016   -1.35281
-------------+----------------------------------------------------------------
3            |
   mspeed_tA |    -.03766   .0233147    -1.62   0.106    -.0833559    .0080359
       _cons |  -1.086226    .450941    -2.41   0.016    -1.970054   -.2023976
------------------------------------------------------------------------------
(outcome==0 is the base outcome)
```

This analysis suggests that *time rough terrain, sum of population, balance of forces distance, initiator democracy, target democracy, surprise, initiator media speed, target media speed* are candidates for inclusion in a preliminary model. As with the nominal variables, other variables that do not exhibit univariate correlation may nevertheless be considered for inclusion based on theory.

Multicollinearity

Variables considered for inclusion in a preliminary model are examined for collinearity problems as follows:

```
. collin Istr_1 Istr_2 Istr_3 mindep_i mindep_t mtype_irtv mtype_trtv

  Collinearity Diagnostics

                       SQRT                  R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
    Istr_1  1.97e+14 1.4e+07    0.0000      1.0000
    Istr_2  4.22e+14 2.1e+07    0.0000      1.0000
    Istr_3  3.08e+14 1.8e+07    0.0000      1.0000
  mindep_i      1.25    1.12    0.7981      0.2019
  mindep_t      1.35    1.16    0.7399      0.2601
mtype_irtv      3.53    1.88    0.2833      0.7167
mtype_trtv      3.48    1.87    0.2873      0.7127
----------------------------------------------------
  Mean VIF  1.32e+14

                        Cond
        Eigenval        Index
---------------------------------
    1     5.5458          1.0000
    2     1.0356          2.3142
    3     1.0127          2.3401
    4     0.2014          5.2480
    5     0.1348          6.4149
    6     0.0528         10.2533
    7     0.0171         18.0149
    8     0.0000  108129252.9642
---------------------------------
 Condition Number 108129252.9642
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.0000
```

The strategy variables – *Istr_1, Istr_2, and Istr_3* exhibit large VIFs and as such are a cause for serious concern regarding collinearity. I next check whether combining them into a single variable *initiator strategy* reduces this concern.

```
. collin  strat mindep_i mindep_t mtype_irtv mtype_trtv

  Collinearity Diagnostics

                       SQRT                  R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
     strat      1.08    1.04    0.9300      0.0700
  mindep_i      1.12    1.06    0.8915      0.1085
  mindep_t      1.33    1.15    0.7530      0.2470
mtype_irtv      3.39    1.84    0.2952      0.7048
mtype_trtv      3.45    1.86    0.2902      0.7098
----------------------------------------------------
  Mean VIF      2.07

                        Cond
        Eigenval        Index
---------------------------------
    1     5.4905          1.0000
    2     0.2335          4.8488
    3     0.1625          5.8123
    4     0.0765          8.4743
    5     0.0209         16.2240
    6     0.0161         18.4622
---------------------------------
 Condition Number         18.4622
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.2472
```

```
. collin sumpop bofadj distance surpdiff mspeed_iA mspeed_tA democ democo

  Collinearity Diagnostics

                        SQRT                    R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
    sumpop      1.23    1.11    0.8126      0.1874
    bofadj      1.22    1.10    0.8204      0.1796
  distance      1.14    1.07    0.8786      0.1214
  surpdiff      1.32    1.15    0.7558      0.2442
 mspeed_iA      4.65    2.16    0.2150      0.7850
 mspeed_tA      4.63    2.15    0.2161      0.7839
     democ      1.09    1.04    0.9196      0.0804
    democo      1.12    1.06    0.8897      0.1103
----------------------------------------------------
  Mean VIF      2.05

                          Cond
       Eigenval          Index
---------------------------------
    1     5.2084          1.0000
    2     1.1203          2.1562
    3     0.8113          2.5337
    4     0.5741          3.0120
    5     0.5087          3.2000
    6     0.4363          3.4552
    7     0.2467          4.5948
    8     0.0656          8.9099
    9     0.0286         13.4864
---------------------------------
 Condition Number        13.4864
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.1286
```

```
. collin  strat mindep_i mindep_t mtype_irtv mtype_trtv sumpop bofadj distance surpdiff mspeed_iA mspeed_tA democ democo

  Collinearity Diagnostics

                        SQRT                    R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
     strat      1.39    1.18    0.7180      0.2820
  mindep_i      1.80    1.34    0.5565      0.4435
  mindep_t      1.86    1.36    0.5373      0.4627
mtype_irtv      7.41    2.72    0.1350      0.8650
mtype_trtv      6.15    2.48    0.1627      0.8373
    sumpop      1.32    1.15    0.7585      0.2415
    bofadj      1.61    1.27    0.6198      0.3802
  distance      1.60    1.26    0.6257      0.3743
  surpdiff      1.52    1.23    0.6587      0.3413
 mspeed_iA      7.10    2.66    0.1409      0.8591
 mspeed_tA      6.07    2.46    0.1646      0.8354
     democ      1.70    1.30    0.5875      0.4125
    democo      1.47    1.21    0.6795      0.3205
----------------------------------------------------
  Mean VIF      3.15

                          Cond
       Eigenval          Index
---------------------------------
    1     9.5395          1.0000
    2     1.1411          2.8914
    3     0.8927          3.2689
    4     0.6579          3.8079
    5     0.5452          4.1829
    6     0.5060          4.3418
    7     0.3394          5.3015
    8     0.1495          7.9871
    9     0.0833         10.7019
   10     0.0650         12.1159
   11     0.0309         17.5769
   12     0.0235         20.1472
   13     0.0158         24.5858
   14     0.0102         30.6486
---------------------------------
 Condition Number        30.6486
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.0012
```

This analysis highlights mild correlation among some of the media variables, with VIF values greater than 5 but still less than 10. I can proceed with caution to include these variables in a preliminary model.

MODEL 1: DEVELOPING A BASELINE MODEL

The theory argues that the international news media should address some of the unexplained variance in existing models of war such as Bennett & Stam. An existing model can serve as a baseline against which the contribution of media variables can be compared. With slight modifications, the Bennett & Stam model can serve as such a baseline for the current study.

In order to adapt the Bennett & Stam published model to test the theory, it must first be modified in two ways. First, the population of observations used by Bennett & Stam is modified to match the population used in the current study. The populations are slightly different because data reflecting the emergence of the international news media could not be identified for several observations, as discussed in section 4.5.2 of the research design chapter on page 96. Second, one of the variables used by Bennett & Stam – *initiator strategy*, reflecting the war initiator's choice of strategy – is modified to enable the statistical model to converge. The issues with the *initiator strategy* variable are discussed next.

During univariable analysis it was revealed that the dummy variables used by Bennett & Stam to represent the initiator strategy – *winning strategy*, *losing strategy*, and *draw strategy* – exhibit complete separation which prevents the logistic regression model from converging. Somewhat surprisingly, the results published by Bennett & Stam exhibit this failure to converge in that no standard error is reported for one or more of these variables. Standard texts on logistic regression and supporting documentation for the Stata program used by Bennett & Stam are all quite clear that failure to return a standard error is a signal that the model has not converged. This problem must be addressed before the Bennett & Stam model can be used as a baseline. Hosmer and Lemeshow (Hosmer and Lemeshow 2004) recommend that if a problematic variable can be thought of as ordinal, it can be modeled as a continuous variable. Since the three variables

- *winning strategy*, *losing strategy*, and *draw strategy* - can be thought of as ordinal, they are amenable to this approach. Thus, these three dummy variables have been combined into a single ordinal variable - *initiator strategy* – representing the initiator's choice of strategy. Doing so enables the model to converge and return valid standard error results for each variable.

A multinomial logistic regression model is created using Stata software that incorporates the variables from the Bennett & Stam model and the adjustments described above. This model will be henceforth referred to as Model 1. The logistic coefficients from Model 1 are presented in Table 8-1.

Model 1 converges (unlike the one published by Bennett & Stam). The direction, magnitude and significance of the coefficients for all three equations closely parallel those published by Bennett & Stam. This suggests that the modifications made to adapt the Bennett & Stam model– adjustments to the population due to missing data and adjustments to the *initiator strategy* variables to enable the model to converge - have not substantively altered the original findings. As such, Model 1 is a suitable baseline against which to compare subsequent models that incorporate media variables, as long as several further concerns are addressed.

One concern is that Model 1 returns unrealistically large coefficients for some of the variables. Model 1 is consistent in this respect with the model published by Bennett & Stam. However, the large coefficients suggest numerical problems with the underlying data (Hosmer and Lemeshow 2004, p. 141). Paul Allison presents an in-depth examination of the issues posed by numerical problems. The results obtained in Model 1 for the *rough terrain, rough terrain*initiator strategy, surprise, initiator strategy,* and *balance of forces* variables for one or more outcome categories closely match Allison's description of quasi-separation problems. In particular, he argues that "variables with nonexistent coefficients will invariably have large parameter estimates, typically

greater than 5.0, and huge standard errors, producing Wald chi-square statistics that are near zero" (Altman, Gill, and McDonald 2004, 248). Allison outlines the alternatives available when the analyst is confronted with quasi-separation issues:

> *Deletion of the problem variable* – "I do not recommend this method. If the variable has quasi-complete separation with the outcome variable, it is reasonable to suppose that the variable has a strong (albeit non-infinite) effect on the outcome variable."
>
> *Combining categories* – "Combining categories may offer a solution."
>
> *Do nothing and report likelihood ratio chi-squares* - "If one leaves the offending variables in the model, the coefficients, standard errors, and test statistics for the remaining variables are still valid maximum likelihood estimates. So one attractive strategy is to leave the problem variables in the model. The coefficients for those variables could be reported as + or minus infinity. The standard errors and Wald statistics for the problem variables will certainly be incorrect, but as noted above, likelihood ratio tests for the null hypothesis that the coefficient is zero are still valid. If these statistics are not available as options in the computer program, they can be obtained easily by fitting the model with and without each problem variable, then taking twice the positive difference in the log-likelihoods."
>
> *Alternative modeling approaches* - "One possible solution is to abandon maximum likelihood entirely and do exact logistic regression. This method was originally proposed by Cox (1970) but was not computationally feasible until the advent of the LogXact program and, more recently, the introduction of exact methods to the logistic procedure in SAS" (Altman, Gill, and McDonald 2004, p. 248-249).

Table 8 - 1. Model 1 Logistic Regression Results

Model 1: Influence of Independent Variables on War Outcome Probabilities			
	Multinomial Logit Estimates[a]		
Independent Variables	**Win vs. Continue**	**Draw vs. Continue**	**Lose vs. Continue**
Rough Terrain	6.529479 (6.290376)	48.32381 (34.42309)	-16.14029* (8.927644)
*Rough Terrain*Initiator Strategy*	-.6957015 (1.153714)	-3.351371 (5.999703)	3.349206* (1.769723)
Sum Of Population	-6.79e-08 (1.20e-06)	.0000109** (3.60e-06)	-7.08e-06 (3.99e-06)
Sum Of Military Personnel	-.0001714 (.0001149)	-.0017494** (.000796)	-.0000155 (.0001383)
Balance Of Forces	2.338575 (1.542884)	19.64676** (8.309667)	-3.438187 (2.855646)
Distance	-.0000699 (.0001501)	.0001564 (.0004926)	-.0005707** (.0002367)
Initiator Salience	-.5281038 (.861708)	-4.175576* (2.370172)	-4.036509** (1.680942)
Target Salience	.3452989 (.6772994)	-4.515218* (2.199748)	-1.439625 (1.152502)
Initiator Repression	.648693 (.4450679)	-1.067565 (1.21988)	1.326641** (.6296294)
Target Repression	.4740108 (.4636876)	-1.388135 (2.109929)	1.046853 (.8329196)
Initiator Democracy	.3534879* (.1873286)	-.4744913 (.4688359)	.2878257 (.240344)
Target Democracy	.0743399 (.181986)	-.2749853 (.6087822)	.4134581 (.3179676)
Surprise	13.91535 (8.711352)	-19.0096 (18.49763)	-24.09474** (12.26891)
*Balance Of Forces*Time*	.1967253 (.134314)	-.5916587* (.3043727)	-.0344642 (.0931419)
*Initiator Democracy*Time*	-.0270305* (.015479)	.0783416** (.0293222)	-.0034912 (.0117651)
*Target Democracy*Time*	-.0057448 (.0148247)	.1247455** (.0460646)	.0051591 (.0155911)
*Initiator Repression*Time*	-.081791** (.0331885)	.1283694** (.0621259)	-.0405511* (.0232971)
*Target Repression*Time*	-.0468481 (.0391913)	.2908006** (.1327972)	.0168949 (.0433589)
*Rough Terrain*Time*	-.0040015 (.1233606)	-1.34718*** (.4096236)	-.0496485 (.1137899)
*Initiator Strategy*Time*	.0708469 (.0699276)	-.3054481** (.1023783)	.0076296 (.0574182)
Initiator Strategy	2.148025 (1.827937)	10.35885 (11.65945)	-7.145301** (2.512961)
Time	.2403762 (.1870112)	-.5049676 (.36028)	.1331684 (.1522937)
(N=193)	[a]Standard errors are in parentheses		
Log likelihood= -111.9515	***p<.01; **p<.05; *p<.10 (two-tailed tests)		
χ^2 (df=66) = 200.45	Pseudo R^2 = 0.4724		

Based on these recommended alternatives, the analysis proceeds by continuing to include the offending variables, albeit with caution. The variables seem to be contributing to the model, although their magnitude of their contributions should be something less than infinity. The impact of these numerical issues is expected to become clear when the substantive results of the model are examined. The analysis proceeds with routine diagnostics intended to identify other issues with the model.

The contribution of individual variables is examined by comparing whether a model including a given variable fits significantly better than a model without. Introducing additional variables will almost always improve the fit of a model, but it is necessary to determine whether the observed difference between two models is statistically significant. A likelihood-ratio test is used to compare the log likelihoods of the model with (model Y) and without (model X) the variable of interest:

$$Lr = -2 \ln((L(\text{model X})/L(\text{model Y})) = 2(ll(\text{model Y})-ll(\text{model X}))$$

The resulting test statistic is distributed chi-square, with degrees of freedom equal to the number of variables added in each of the estimation equations, i.e. 3. (Agresti 2002). Although chi-square test can be sensitive to sample size, Agresti recommends that for small sample sizes, the likelihood-ratio test is the preferred approach over the alternatives of the Wald test or the Hosmer-Lemeshow Goodness of Fit test (1997). The likelihood ratio test is conducted using *mlogtest*, which is part of the *spost* package written by Jeremy Freese and J. Scott Long (2001). The likelihood-ratio test results in Table 8-2 show that most variables are contributing to the model, with a few notable exceptions. In particular, six variables (*time, target salience, initiator repression, target repression, initiator democracy, target democracy*) fail to contribute to a statistically significant degree. This concern is noted and the diagnostic analysis proceeds.

Table 8 - 2. Model 1 Likelihood-Ratio Test

Model 1: Likelihood-ratio tests for independent variables (N=193)			
Ho: All coefficients associated with given variable(s) are 0.			
Independent Variables	**X^2**	**df**	**P> X^2**
Balance Of Forces	15.798	3	0.001
*Balance Of Forces*Time*	11.992	3	0.007
*Initiator Democracy*Time*	16.787	3	0.001
*Target Democracy*Time*	14.261	3	0.003
Initiator Democracy	7.287	3	0.063
Target Democracy	3.723	3	0.293
Distance	7.045	3	0.070
*Initiator Repression*Time*	16.708	3	0.001
*Target Repression*Time*	10.495	3	0.015
Initiator Repression	5.713	3	0.126
Target Repression	4.462	3	0.216
Rough Terrain	11.993	3	0.007
*Rough Terrain*Initiator Strategy*	10.173	3	0.017
*Rough Terrain*Time*	29.026	3	0.000
Initiator Salience	8.24	3	0.041
Target Salience	6.977	3	0.073
Initiator Strategy	21.902	3	0.000
*Initiator Strategy*Time*	21.13	3	0.000
Sum Of Military Personnel	13.483	3	0.004
Sum Of Population	29.847	3	0.000
Surprise	12.416	3	0.006
Time	4.055	3	0.256

Multicollinearity of the variables included in Model 1 is checked next. Obviously, the full model has issues due to the presence of interacted terms. Several authors address the problem of collinearity when interaction terms are included (Brambor, Clark, and Golder 2006; Braumoeller 2004; Jaccard 2001). In general, large VIFs are to be expected for interaction terms. Therefore, the model is checked without the interaction terms.

The main effects terms presented in Table 8-3 do not appear to have any significant collinearity issues.

Table 8 - 3. Model 1 Collinearity Diagnostics

Collinearity Diagnostics				
Variable	**VIF**	**SQRT VIF**	**Tolerance**	**R-Squared**
Rough Terrain	1.15	1.07	0.8689	0.1311
Sum Of Population	1.37	1.17	0.7322	0.2678
Sum Of Military Personnel	1.66	1.29	0.6041	0.3959
Balance Of Forces	1.59	1.26	0.629	0.371
Distance	1.81	1.35	0.5521	0.4479
Initiator Salience	1.66	1.29	0.6024	0.3976
Target Salience	1.18	1.09	0.8439	0.1561
Initiator Repression	3.36	1.83	0.2977	0.7023
Target Repression	4.11	2.03	0.2432	0.7568
Initiator Democracy	3.03	1.74	0.3305	0.6695
Target Democracy	4.03	2.01	0.248	0.752
Surprise	1.46	1.21	0.6849	0.3151
Initiator Strategy	1.61	1.27	0.6226	0.3774
Time	1.44	1.2	0.695	0.305

Model 1 has satisfied diagnostic tests with a few concerns noted. It is therefore a suitable baseline model against which models incorporating media variables are to be compared. In the next section, model development proceeds by incorporating media variables directly into Model 1.

INCORPORATING MEDIA VARIABLES

The most straightforward approach to examining the contribution of media variables to existing models of war is to simply add them to the baseline model. In this section, a series of models incorporating media variables is developed by iteratively adding blocks of media variables to the baseline model (Model 1), and comparing the strength of each successive model to the baseline Model 1. Blocks of variables are added, as opposed to individual variables, because doing so simplifies the model development process without sacrificing theory. At the conclusion of model

development, the contribution of individual variables to the model is checked to ensure the end result is statistically and theoretically valid. The strength of each successive iteration is compared to Model 1 using a likelihood-ratio test. The successive iterations are presented in Table 8-4, with the results of the likelihood ratio test: the log-likelihood, the degrees of freedom, and the resulting statistical significance of each block.

Table 8 - 4. Likelihood-Ratio Tests of Model 1A and Model 1B

Model Name	**Variable Block (*variables*)**	**Log Likelihood**	**df**	**Prob > LR**
Model 1	*See above*	-111.9	66	.
Model 1A	Model 1 + Initiator Media (*initiator media type, initiator media speed, initiator media independence)*	-88.3	75	.000
Model 1B	Model 1 + Target Media (*target media type, target media speed, target media independence)*	-100.1	75	.001
Model 1C	Model 1 + Initiator Media + Target Media	Model fails to converge		

Table 8-4 shows that when the initiator media block of variables is added to Model 1 to form Model 1A, the resulting log likelihood of -89.3 represents a significant (.000) improvement over Model 1 without the media variables. Similarly, when the block of target media variables is added to Model 1 to form Model 1B, the resulting model is significantly better than Model 1 (.001). When both initiator and target media variable blocks are added to Model 1 to form Model 1C, the model fails to converge. In a very limited sense, the results for Model 1A and Model 1B show that the media variables address some of the unexplained variance in the original Bennett & Stam model. However, there are important problems with simply adding variables to Model 1.

Table 8-5 presents the logistic regression coefficients for Model 1A (coefficients for Model 1B are omitted in the interest of space). The model returns coefficients that are relatively large, and standard errors that are large compared to their coefficients. The cautions regarding the large coefficients and standard errors that were discussed above apply equally to Model 1A and are therefore a reason for caution. These cautions and the inability of the model to converge when all of the media variables are included make Model 1A unsuitable for further exploration.

Further model development is required to overcome the weaknesses in Model 1 and Model 1A. The root of those weaknesses is believed to be the large number of variables contained in the models relative to the limited number of observations. Therefore, further model development concentrates on very selectively drawing from the variables included in the original Bennett & Stam model and including only those media variables which make significant contributions to any resulting model. As described in section 4.7 (beginning on page number 111) of the research design chapter, the inclusion of variables will be guided by theory. However, the experience with Model 1 and Model 1A shows that although the process is guided by theory, it is bounded by the other limitations of the project – the demands of the research questions, the limited number of observations, and so forth. Therefore, the iterative process of deleting, refitting, and verifying the model continues. In the next section, the variables included in Bennett & Stam are examined more closely and only the most important variables are selected for inclusion as control variables in another model.

Table 8 - 5. Model 1A with Initiator Media Variables

Model 1: Influence of Independent Variables on War Outcome Probabilities			
	Multinomial Logit Estimates[a]		
Independent Variables	**Win vs. Continue**	**Draw vs. Continue**	**Lose vs. Continue**
Rough Terrain	-18.24693 (12.75827)	510.418 (324.845)	-18.24693 (12.75827)
*Rough Terrain*Initiator Strategy*	9.680631 (6.594544)	-157.1906 (133.6525)	9.680631 (6.594544)
Sum Of Population	-7.65e-06 (3.90e-06)	.0001001* (.0000485)	-7.65e-06* (3.90e-06)
Sum Of Military Personnel	-.000041 (.0001624)	-.0097814** (.0037754)	-.000041 (.0001624)
Balance Of Forces	-4.4679 (4.100877)	140.8071* (63.5458)	-4.4679 (4.100877)
Distance	-.0006221 (.0002884)	.0054601 (.0028921)	-.0006221* (.0002884)
Initiator Salience	-6.007176 (2.439761)	-14.10876 (14.23227)	-6.007176 (2.439761)
Target Salience	-2.348655 (1.341609)	-52.19168 (28.69645)	-2.348655** (1.341609)
Initiator Repression	1.831764 (.8416176)	-26.27997 (17.40302)	1.831764* (.8416176)
Target Repression	1.85038 (1.024602)	-6.956856 (4.479399)	1.85038 (1.024602)
Initiator Democracy	.1604148* (.2870863)	-18.50998 (9.974731)	.1604148 (.2870863)
Target Democracy	.7471154 (.4379391)	4.248282 (3.707215)	.7471154 (.4379391)
Surprise	-32.40211 (13.3255)	-220.5637* (105.2141)	-32.40211* (13.3255)
*Balance Of Forces*Time*	-.0147855 (.1178716)	-2.957725* (1.33575)	-.0147855 (.1178716)
*Initiator Democracy*Time*	-.01178 (.0152985)	.5179317 (.281243)	-.01178 (.0152985)
*Target Democracy*Time*	-.000581 (.0179351)	.6029141** (.2459833)	-.000581 (.0179351)
*Initiator Repression*Time*	-.0673132* (.033938)	1.155701 (.6933748)	-.0673132 (.033938)
*Target Repression*Time*	-.0017881 (.0477898)	1.263019** (.5283293)	-.0017881 (.0477898)
*Rough Terrain*Time*	-.1188602 (.135389)	-9.275641** (4.190938)	-.1188602 (.135389)
*Initiator Strategy*Time*	.0334061 (.0653701)	-2.179872** (.9778579)	.0334061 (.0653701)
Initiator Strategy	-8.993879* (3.532721)	81.44362 (72.71384)	-8.993879* (3.532721)
Time	.2818598 (.1875464)	-1.901421 (2.401803)	.2818598 (.1875464)
Initiator Media Type	-1.283421 (.8582182)	-36.46416 (20.91818)	-1.283421 (.8582182)
Initiator Media Speed	.2032254 (.110125)	5.838106* (2.937866)	.2032254 (.110125)
Initiator Media Independence	.8127055 (.9451533)	71.68946 (38.1365)	.8127055 (.9451533)
(N=193) Log likelihood= -88.30 χ^2 (df=75) = 247.45	[a]Robust standard errors are in parentheses ***p<.01; **p<.05; *p<.10 (two-tailed tests) Pseudo R^2 = 0.5838		

Table 8-5. Model 1A Logistic Regression Results

SELECTIVELY INCLUDE CONTROL VARIABLES

In this section, variables serving as controls for factors already known to influence wars are selected from among those included in Model 1. Only those variables that make the strongest contribution to Model 1 and/or that are dictated by theory should be considered for inclusion as controls. Given the large number of variables in Model 1, it is helpful to examine the makeup of Model 1 in terms of groups, or blocks, of variables that represent related factors, as were presented in Figure 4-2. The first block considered consists of variables addressing material, or realist, factors including terrain, balance of forces, the element of surprise, etc. The second block consists of variables addressing polity-related factors such as regime type, level of repression, etc. The third block consists of simply the *time* variable.

The contribution of each block of variables is examined by comparing it, individually and in combination, to a null model using a likelihood-ratio test. The results, presented in Table 8-6, show that the *time* variable makes a significant (.000) contribution compared to a null model. It also shows that the block of realist variables makes a far stronger contribution (.000) than the block of polity variables (.304).

These results provide guidance about which variables from Model 1 provide the most explanatory power and should therefore be included in the model. Not only does *time* appear to make a significant (.000) contribution, it must also be included for theoretical reasons. The realist block of variables should be included based on its contribution and also the important role played by power (and related material factors) in the theory. While the polity block of variables contributes much less than the realist variables, the *initiator democracy* and *target democracy*

variables from that block should be nevertheless included, since they play an important theoretical role as well.

Table 8 - 6. Likelihood-Ratio Tests, Model 1 Variable Blocks

Variable Block (*variables)*	**Log Likelihood**	**DF**	**Prob > LR**
Null Model	-212.2	0	.
Time: *Time*	-194.9	3	.000
Polity (*Initiator Democracy, Target Democracy, Initiator Repression, Target Repression, Initiator Salience, Target Salience)*	-203.5	18	.304
Realist: (*Rough Terrain, Rough Terrain*Initiator Strategy, Sum Of Population, Sum Of Military Personnel, Balance Of Forces Distance, Surprise, Initiator Strategy)*	-158.3	24	.000
Polity + Time	-187.6	21	.692
Realist + Time	-152.6	27	.000
Polity + Time + Polity*Time	-179.0	33	.388
Realist + Time + Realist*Time	-143.9	36	.000

Based on this examination of the variables in Model 1, only the realist variables (*rough terrain, rough terrain*initiator strategy, sum of population, sum of military personnel, balance of forces distance, surprise, initiator strategy*), selected polity-related variables (*initiator democracy, target democracy*) and *time* will be included as control variables. In the next step of model development, these control variables are included in a model with the media variables.

MODEL 3: MEDIA VARIABLES PLUS CONTROL VARIABLES

In this section, a model including media and control variables is developed in three steps. First, a main-effects model is developed by including variables dictated by theory or that appear to make a strong contribution to the model. Next, interaction effects suggested by theory are examined and included to yield a preliminary main-effects plus interaction-effects model. Finally, this preliminary model is subjected to a series of diagnostic tests and refined by iteratively deleting variables, refitting the model, re-testing and so on until a satisfactory final model is arrived at.

Variables for inclusion in the main-effects model are selected using a likelihood-ratio test approach similar to that used above. The contribution of the media variables are examined in the context of the control variables, and the results are presented in Table 8-7.

As shown in Table 8-7, when the Democracy block and the Initiator Media block are examined individually, they fail to make a significant contribution to the model (.626 and .252, respectively). At this point in the analysis, however, they will nevertheless be included due to their importance to the theory. A preliminary main effects model, then, consists of Democracy + Realist +Time + Initiator Media + Target Media blocks of variables (or 'D+R+T+M' for short).

Interaction terms are considered next, using a similar approach. As guided by theory and presented in Figure 4-3, interactions between media and time and between media and democracy are expected. Successive models with a Media*Time block and a Media*Democracy block are compared to the preliminary main-effects model (D+R+T+M). The results are presented in Table 8-8.

Table 8 - 7. Likelihood-Ratio Tests, Media and Control Variable Blocks

Variable Block (*variables)*	**Log Likelihood**	**DF**	**Prob > LR**
Null Model	-212.2	0	.
Time: *Time*	-194.9	3	.000
Democracy: (*Initiator Democracy, Target Democracy)*	-209.9	6	.626
Realist: (*Rough Terrain, Rough Terrain*Initiator Strategy, Sum Of Population, Sum Of Military Personnel, Balance Of Forces Distance, Surprise, Initiator Strategy)*	-158.3	24	.000
Initiator Media: (*Initiator Media Type, Initiator Media Speed, Initiator Media Independence)*	-206.5	9	.252
Target Media: (*Target Media Type, Initiator Media Speed, Target Media Independence)*	-203.7	9	.049
Democracy + Realist + Time	-150.1	33	.000
Democracy + Realist + Time + Initiator Media	-140.1	42	.000
Democracy + Realist + Time + Target Media	-144.1	42	.000
Democracy + Realist + Time + Initiator Media + Target Media (D+R+T+M)	-132.3	51	.000

Table 8 - 8. Likelihood Ratio Test, Interaction Effects

Variable Block	**Log Likelihood**	**DF**	**Prob > LR**
Democracy + Realist + Time + Initiator Media + Target Media (D+R+T+M)	-132.3	51	.
D+R+T+M + Media*Time	-119.2	69	.091
D+R+T+M + Media*Democracy	-112.0	69	.001
D+R+T+M + Media*Time + Media*Democracy	Model fails to converge		

The interaction between time and media predicted by the theory does not appear to be supported by this analysis, since the interacted variable block does not appear to make a significant contribution (.091). However, the democracy interaction with media variables does appear to make a significant contribution to the model (.001). Including both democracy

interaction variables and time interaction variables is not possible because the model fails to converge. As was the case above, the limited number of observations in the dataset imposes a limit on the number of variables that can be included in the model. Therefore, the relatively less-significant Media*Time interaction variables will be dropped from further model development, while the Media*Democracy interaction variables will be included.

The model development process has thus far yielded a preliminary main effects plus interaction effects model consisting of the democracy variables, the realist variables, time, the media variables, plus democracy*media interaction variables. The contribution of the individual variables is assessed by performing a likelihood-ratio test. The results of the test are presented in Table 8-9.

The results in Table 8-9 show that several variables do not appear to be contributing at a significant level: the main-effects variables of *target democracy, rough terrain*initiator strategy, distance, target media type,* and *target media independence;* and the media interaction variables of *initiator democracy*initiator media speed, initiator democracy*initiator media independence, target democracy*target media independence, target democracy*target media type,, and target democracy*target media independence.* After a process of iteratively deleting, refitting and testing, a final model consisting of main effects plus interaction effects is arrived at, labeled Model 3. The logistic regression coefficients for Model 3 are presented in Table 8-10.

Table 8 - 9. Interim model: Likelihood-ratio test

Interim Model: Likelihood-ratio tests for independent variables (N=193)			
Ho: All coefficients associated with given variable(s) are 0.			
Independent Variables	**X^2**	**df**	**P> X^2**
Initiator Democracy	7.931	3	0.047
Target Democracy	4.417	3	0.220
Time	8.148	3	0.043
Rough Terrain	9.634	3	0.022
*Rough Terrain*Initiator Strategy*	7.367	3	0.061
Sum Of Population	26.585	3	0.000
Sum Of Military Personnel	10.476	3	0.015
Balance Of Forces	12.455	3	0.006
Distance	6.737	3	0.081
Surprise	9.171	3	0.027
Initiator Strategy	22.192	3	0.000
Target Media Type	3.816	3	0.282
Target Media Speed	19.807	3	0.000
Target Media Independence	2.93	3	0.403
Initiator Media Type	13.113	3	0.004
Initiator Media Speed	13.511	3	0.004
Initiator Media Independence	16.255	3	0.001
*Initiator Democracy*Initiator Media Speed*	4.825	3	0.185
*Initiator Democracy*Initiator Media Type*	12.886	3	0.005
*Initiator Democracy*Initiator Media Independence*	5.665	3	0.129
*Target Democracy*Target Media Speed*	4.387	3	0.223
*Target Democracy*Target Media Type*	5.692	3	0.128
*Target Democracy*Target Media Independence*	1.443	3	0.695

Table 8 - 10. Model 3 Logistic Regression Results

Model 3: Influence of Media Variables plus Controls on War Outcome Probabilities			
	Multinomial Logit Estimates[a]		
Independent Variables	**Win vs. Continue**	**Draw vs. Continue**	**Lose vs. Continue**
Balance Of Forces	3.491063*** (1.098528)	2.43519 (1.957763)	-3.74823 (2.642367)
Sum Of Population	-1.13e-06 (1.01e-06)	3.28e-06** (1.54e-06)	-.0000122** (4.44e-06)
Rough Terrain	30.34893*** (8.434361)	33.26401** (12.00702)	-11.66131 (11.19558)
*Rough Terrain*Initiator Strategy*	-13.56259*** (4.009495)	-14.33361** (4.772376)	4.943956 (5.100339)
Sum Of Military Personnel	-.0000399 (.0000718)	-.0002304* (.0001267)	.0003848** (.0001273)
Initiator Strategy	9.684771*** (2.396563)	8.138004** (2.791037)	-4.963213* (2.565978)
Time	-.0106329 (.0126406)	.0235162 (.0130854)	.005305 (.0200067)
Initiator Democracy	-.6116132 (.4166819)	-.5390515 (.7409285)	3.826952** (1.5863)
Target Democracy	.0762646 (.5106091)	-.6292981 (.7636223)	-3.534492** (1.267869)
Initiator Media Type	.9802716* (.5867809)	-1.830452 (1.138183)	.4185405 (1.162991)
Initiator Media Speed	-.1565062** (.0689421)	-.0455221 (.1166524)	.3845732*** (.1153324)
Initiator Media Independence	-.7119558 (.998833)	3.200408** (1.218296)	3.783921** (1.335889)
Target Media Type	-.0789779 (.3113761)	.3740885 (.6368387)	-.5759963 (.6622109)
Target Media Speed	-.0473793 (.0463894)	.1292832 (.0939225)	-.3993923*** (.0897512)
Target Media Independence	-.8938125* (.4825785)	-.7848033 (.4835764)	.942536 (.9826756)
*Initiator Democracy*Initiator Media Type*	.1592469* (.0910348)	.2415834 (.15263)	-.6664941** (.3083906)
*Target Democracy*Target Media Type*	.0169385 (.1181943)	.1672011 (.169489)	.9046992** (.3199671)
*Initiator Democracy*Initiator Media Independence*	.1581317 (.163842)	-.3046931 (.2592132)	-1.256907** (.5292474)
(N=193) Log-likelihood = -121.26 X^2 (df=54) = 6833.49 Pseudo R^2 = 0.4285	[a]Robust standard errors are in parentheses ***p<.01; **p<.05; *p<.10 (two-tailed tests)		

Table 8-10. Model 3 Logistic Regression Results

Model 3 yields coefficients that are, for the most part, of an appropriate scale. Standard errors are, in most cases, of reasonable size relative to the coefficients themselves. The model returns robust standard errors. All variables are statistically significant for at least one of the three equations, with the exception of *target media type* and *time*. However, these variables are nevertheless retained because of their importance to the theory. A series of diagnostic tests is run next to confirm the strength of the model prior to using it to test hypotheses.

Model 3 diagnostics

A likelihood-ratio test is used to examine the contribution of the individual variables in Model 3. The results are shown in Table 8-11.

Table 8 - 11. Model 3 Likelihood-Ratio Test

Model 3: Likelihood-ratio tests for independent variables (N=193)			
Ho: All coefficients associated with given variable(s) are 0.			
Independent Variables	**X^2**	**df**	**P> X^2**
Balance Of Forces	14.519	3	0.002
Sum Of Population	22.276	3	0
Rough Terrain	12.269	3	0.007
*Rough Terrain*Initiator Strategy*	9.813	3	0.02
Sum Of Military Personnel	13.048	3	0.005
Initiator Strategy	25.679	3	0
Time	5.083	3	0.166
Initiator Democracy	12.608	3	0.006
Target Democracy	13.929	3	0.003
Initiator Media Type	7.161	3	0.067
Initiator Media Speed	14.111	3	0.003

Initiator Media Independence	16.485	3	0.001
Target Media Type	0.731	3	0.866
Target Media Speed	11.244	3	0.01
Target Media Independence	6.732	3	0.041
*Initiator Democracy*Initiator Media Type*	13.93	3	0.003
*Target Democracy*Target Media Type*	15.108	3	0.002
*Initiator Democracy*Initiator Media Independence*	9.682	3	0.021

The results of the likelihood-ratio test show a significant contribution from most of the variables, with the exception of *time* (.166), *initiator media type* (.067), *target media type* (.866). Despite their weak contributions, these variables are retained in the model due to their importance to the theory.

Collinearity of the main effects variables contained in Model 3 is examined next:

Table 8 - 12. Model 3 Collinearity Diagnostics

Collinearity Diagnostics				
Variable	**VIF**	**SQRT VIF**	**Tolerance**	**R-Squared**
Balance Of Forces	1.47	1.21	0.6818	0.3182
Sum Of Population	1.35	1.16	0.7404	0.2596
Rough Terrain	1.28	1.13	0.7825	0.2175
Sum Of Military Personnel	1.44	1.2	0.6966	0.3034
Initiator Strategy	1.43	1.2	0.6984	0.3016
Time	1.55	1.24	0.646	0.354
Initiator Democracy	1.86	1.36	0.5368	0.4632
Target Democracy	1.51	1.23	0.6607	0.3393
Initiator Media Type	6.86	2.62	0.1458	0.8542
Initiator Media Speed	7.25	2.69	0.138	0.862
Initiator Media Independence	1.83	1.35	0.5456	0.4544
Target Media Type	5.14	2.27	0.1946	0.8054
Target Media Speed	6.5	2.55	0.1537	0.8463
Target Media Independence	1.91	1.38	0.5229	0.4771

Collinearity diagnostics show a mild concern with collinearity for the media type and media speed variables. The VIFs are, however, well below the threshold of 10 at which the variables would be considered for removal from the model. Therefore, they will be retained in the model.

Next, the ability of Model 3 to distinguish between outcomes categories is examined. This diagnostic assures that the model meets the assumption of the independence of irrelevant alternatives required by the multinomial logistic regression model.

Table 8 - 13. Model 3: Likelihood-Ratio Test for Combining Outcome Categories

Likelihood ratio test for combining alternatives				
H_o: All coefficients except intercepts associated with a given pair of alternatives are 0 (i.e., alternatives can be collapsed).				
Alternatives tested		**X^2**	**Df**	**P> X^2**
-1	2	44.352	18	0.001
-1	3	93.176	18	0.000
-1	0	89.043	18	0.000
-2	3	55.826	18	0.000
-2	0	29.466	18	0.043
-3	0	55.066	18	0.000

The model has marginal difficulty distinguishing between Continue (0) and Draw (2) outcomes. A derivative of Model 3, labeled Model 4, is developed to examine the implications of combining these outcome categories. The development and examination of Model 4 is omitted in the interest of brevity. In summary, while Model 4 better discriminates between the Continue and Draw outcomes, Model 4 does not generate substantive predictions that differ in any important

way from those generated by Model 3. Therefore, further analysis focuses on the statistical strength and substantive utility of Model 3.

The proportional reduction in error (PRE) of Model 3 is calculated by generating a predicted outcome for each observation in the dataset and comparing each prediction to the actual outcome for that observation. For the purposes of this calculation, the predicted outcome is defined as the outcome among the four possible values (continue, win, draw, lose) for which the model predicts the highest probability value.

The predicted outcomes from the model (*outcomehat*) are tabulated against the actual outcomes (*outcome)*. A table of outcomehat and outcome for Model 3 is presented in Table 8-14.

Table 8 - 14. Model 3: Proportional Reduction in Error

Key:
Frequency
Row Percentages

Model 3: Proportional Reduction in Error

	Predicted Outcome (*outcomehat*)				
Outcome	Continue	Win	Draw	Lose	**Total**
Continue	95 87.16	11 10.09	0 0.00	3 2.75	109 100.00
Win	18 36.00	31 62.00	1 2.00	0 0.00	50 100.00
Draw	10 66.67	1 6.67	14 26.67	0 0.00	15 100.00
Lose	8 42.11	0 0.00	0 0.00	11 57.89	19 100.00
Total	131 67.88	43 22.28	5 2.59	14 7.25	193 100.00

The model's proportional reduction in error is calculated based on these predictions. As expected, the model overpredicts the 'continue' outcome and underpredicts the other outcomes. A null model would predict 'continue' for every observation, which would be correct for

109/193=56.5% of the observations. By contrast, the above model correctly predicts 95+31+4+11=141 observations out of 193, or 73.1% of the observations. So the proportional reduction in error is (141-109) / (193-109) = 32/84 = 38%. This is a reasonable rate of error reduction.

The goodness-of-fit of Model 3 is evaluated by comparing it with the baseline model previously presented. Since Model 3 is not nested in the previously examined models, the likelihood-ratio test used above cannot be used to make this comparison. Rather, the Bayesian Information Criterion[21] is relied on to compare Model 3 to Model 1. The goodness-of-fit statistics, including the Bayesian Information Criteria, are presented in Table 8-15.

Table 8 - 15. Goodness-Of-Fit Statistics Comparing Model 3 to Model 1

Model:	**Model 3**	**Model 1**	**Difference**
N:	193	193	0
Log-Lik Intercept Only	-212.176	-212.176	0
Log-Lik Full Model	-121.264	-111.952	-9.312
D	242.529 (136)	223.904 (124)	18.625 (12)
LR	181.823 (54)	200.448 (66)	18.625 (12)
Prob > LR	0	0	0.098
McFadden's R2	0.428	0.472	-0.044
McFadden's Adj R2	0.16	0.147	0.013
ML (Cox-Snell) R2	0.61	0.646	-0.036
Cragg-Uhler(Nagelkerke) R2	0.686	0.727	-0.04
Count R2	0.725	0.756	-0.031
Adj Count R2	0.369	0.44	-0.071
AIC	1.847	1.875	-0.028
AIC*n	356.529	361.904	-5.375
BIC	-473.197	-428.67	-44.527
BIC'	102.362	146.889	-44.527
BIC used by Stata	542.502	587.03	-44.527
AIC used by Stata	356.529	361.904	-5.375

[21] For all models, *fitstat* reports the log-likelihoods of the full and intercept-only models, the deviance (D), the likelihood ratio chi-square (G2), Akaike's Information Criterion (AIC), AIC*N, the Bayesian Information Criterion (BIC), and BIC' (Freese and Long 2001; Stata Corp.).

The difference in the Bayesian Information Criteria (BIC') measure of fit of 44.527 provides very strong support for Model 3 compared to Model 1. The interpretation of the results follows Raftery's (1995) guidelines to interpret BIC differences between two models: a BIC difference >10 is considered 'very strong' evidence in favor of the model with the smaller BIC; a difference of > 6 to 10 is 'strong'; >2 to 6 is 'positive'; and 0 to 2 is 'weak' evidence. The difference of 44.527 observed above is therefore characterized as providing 'very strong' support for Model 3 compared to Model 1.

Model 3 - residuals

In order to determine whether Model 3 has flaws in the form of variables or other problems that systematically skew the results, the residuals of the model are examined for each of the four outcome categories. The residuals for each value of the outcome variable are plotted by year, and a 2nd order polynomial trendline is calculated for the resulting plot. The scatterplot and trendline for each is presented here:

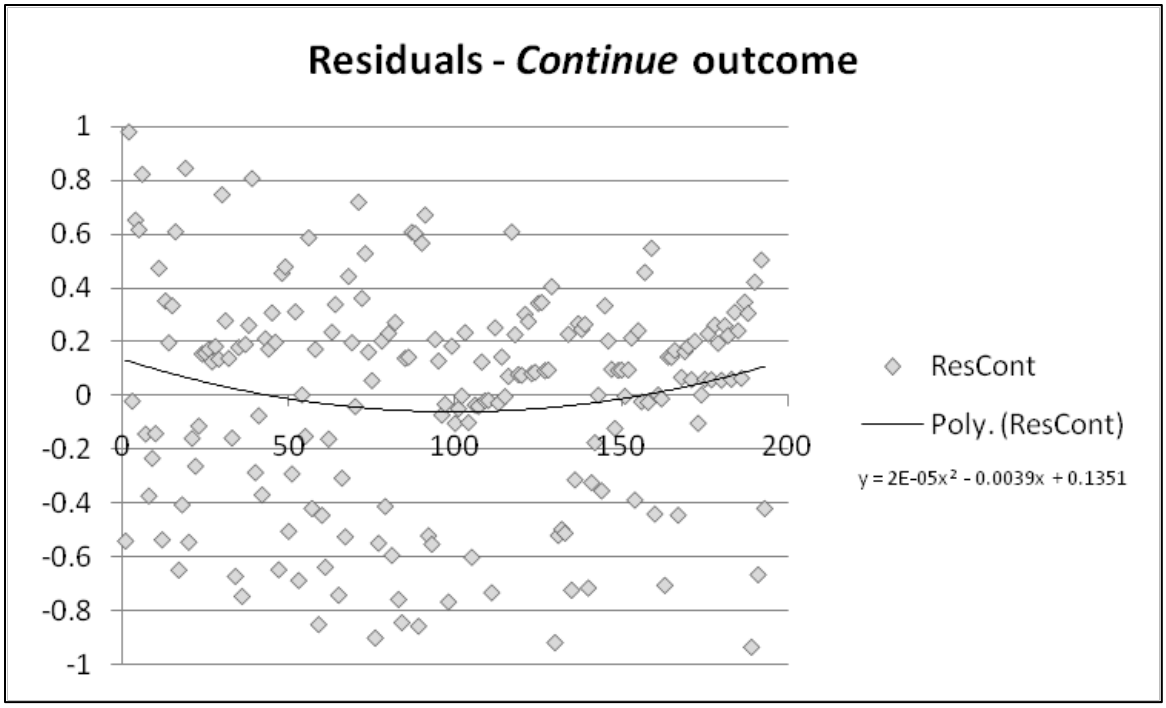

Figure 8 - 1. Model 3 Residuals (Continue)

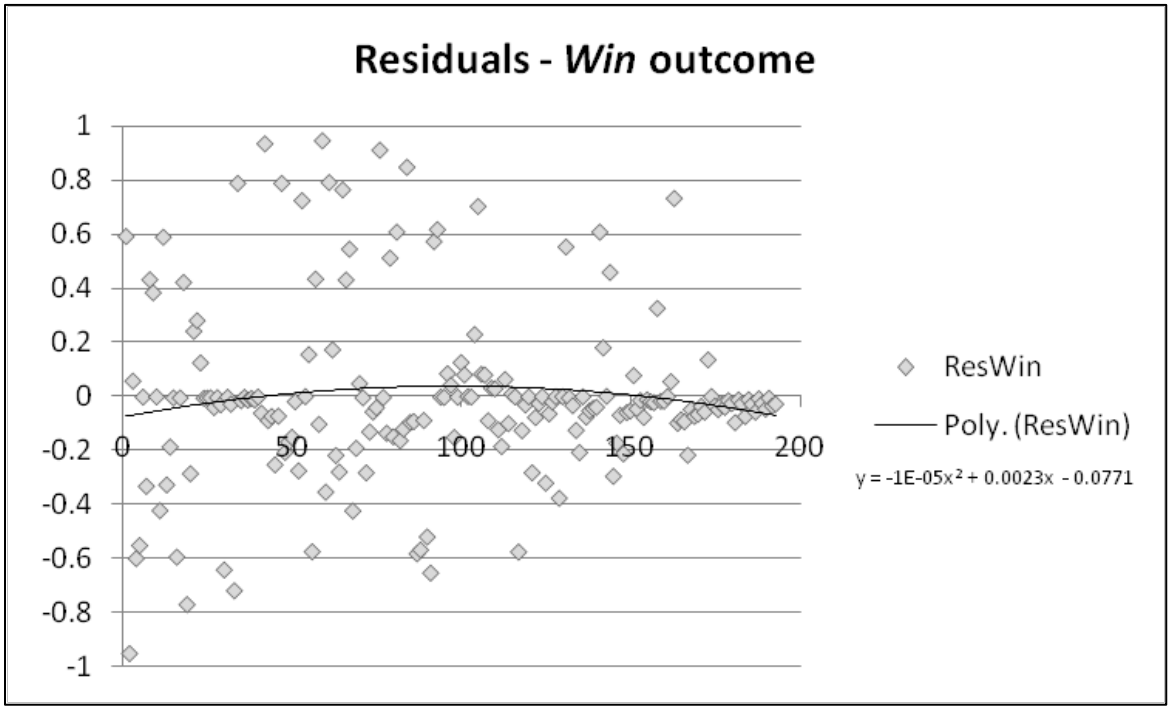

Figure 8 - 2. Model 3 Residuals (Win)

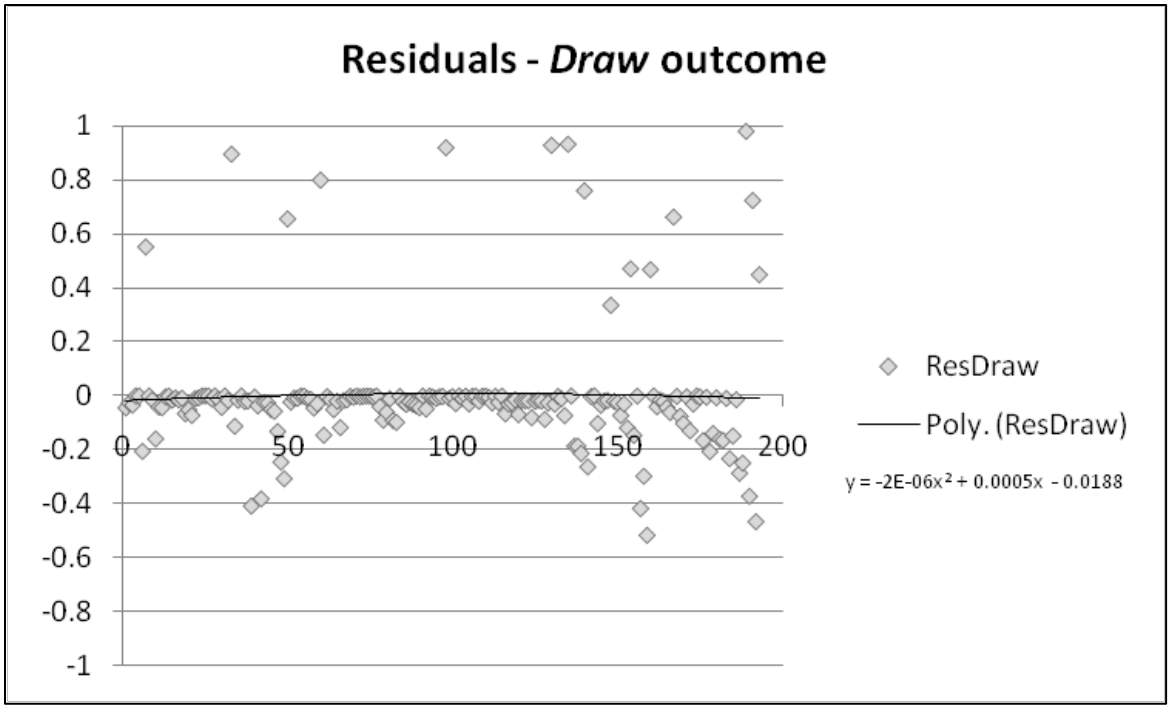

Figure 8 - 3. Model 3 Residuals (Draw)

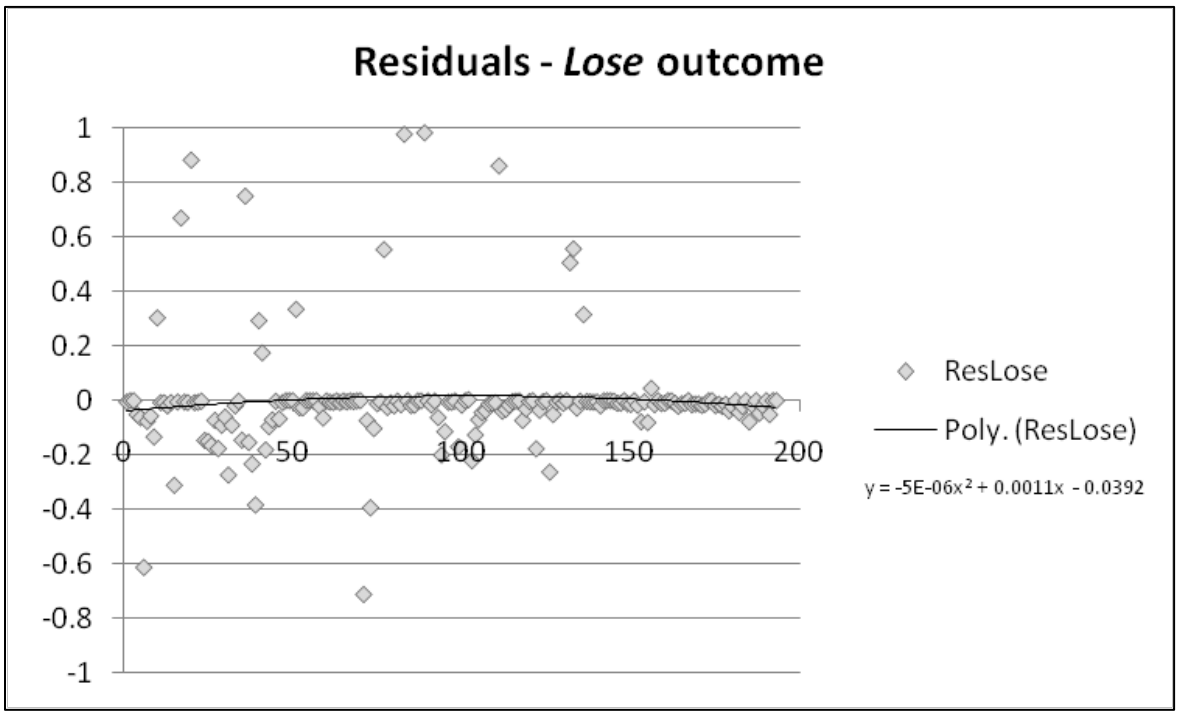

Figure 8 - 4. Model 3 Residuals (Lose)

The residual plots for the four outcome categories highlight shortcomings in the model. The residuals for the *Continue* and *Win* outcomes exhibit a slight trend, suggesting the model is weaker at predicting these outcomes for the earliest and the latest wars. However, the residuals for the *Draw* and *Lose* outcomes exhibit considerably smaller trends, suggesting a good fit. Because no consistent trend appears across all of the categories of the outcome variable, the residual analysis does not suggest a data transformation or other immediate remedy that can be undertaken at this time. Therefore, the model is judged to be suitable for the purpose of this project.

SUMMARY OF MODEL DEVELOPMENT

In this appendix, models were developed to test the theory advanced in 3. Model 1 represents the conventional wisdom regarding the causes of war in the sense that is contains those variables included in previously published studies of war outcomes. For the purposes here, it serves as a baseline against which models incorporating media variables are compared.

Models 1A and 1B add media variables to Model 1. Tests of these models suggest that the media variables address some of the unexplained variance in Model 1. However, Models 1A and 1B are unsatisfactory in that they return unrealistically large coefficients and relatively large standard errors for many variables, and they only contain media variables for the initiator state or the target state but not both. Model 1C includes both initiator and target state media variables but fails to converge at all. These results necessitated further model development which yielded Model 3.

Model 3 was developed by selectively including variables from Model 1 and including all media variables. In addition, it includes several interaction variables which are suggested by theory and pass tests of statistical significance. Model 3 passes all diagnostic tests and is a suitable model for examining the influence of the media on war outcomes.

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