Patterns of Attention: Traditional and New Media

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Chapter 1: The Media in Flux

At the dawn of the Internet age, there was a great hope that the Internet would provide a new cornucopia of information to the masses. It would be a perfect resource—providing completely free and instant information to everyone. The traditional constraints placed on journalists would be eliminated. There would be an unlimited and perfect supply of information across a whole spectrum of topics. It would be a new, democratizing force.

A decade and a half after the dawn of this age, there has certainly been progress. There is a wealth of information available on the Internet spanning a wide array of topics. To those that want to find information, something is almost certainly out there in cyberspace to quench their thirst for knowledge. And, the Internet has been a great political tool. Beginning in the spring of 2011, governments in several Arab states including Egypt, Tunisia, and Libya were overthrown by protests that began on social media. In some regards, Internet media, particularly social media like Facebook and Twitter, has been used for revolutionary means.

In the past three presidential elections, the Internet has also played an unprecedented role. Candidates have raised tens of millions of dollars on the Internet and reached out to electoral bases they never would have imagined being able to reach in the past. Candidate presence online is currently at an unprecedented level. These tendencies show that the Internet does have a certain amount of democratizing capacity.

In this same vein, the media in general have often been held by political scientists and scholars of public policy and journalism to be a sort of fourth branch of government. In many ways, they do serve as another check and balance on governmental institutions,

provided they fulfill the watchdog responsibility that many citizens have assigned to them. The media too has made their way online. But, the media are not the end all to be all. Walter Lippmann (1922) wrote:

> The press is no substitute for institutions. It is like the beam of a searchlight that moves restlessly about, bringing one episode and then another out of darkness and into vision. Men cannot do the work of the world by this light alone. They cannot govern society by episodes, incidents, and eruptions. It is only when they work by a steady light of their own, that the press, when it is turned upon them, reveals a situation intelligible enough for a popular decision. (228)

When Lippmann wrote this in 1922, the press certainly filled this capacity. It highlighted a few important issues that it deemed should be part of public opinion. Even today, traditional news sources like newspapers and television news largely fulfill this role.

As this important institution, the media can help to define the national agenda. The media shape the public agenda by providing information to citizens. Citizens use the information provided by the media to gauge which issues are important at a given point in time. Because of this connection between the media and public agendas, policymakers look to the media to determine which issues their constituents will feel are important. In this way, the media are not only a watchdog, but also an agenda-setter.

But, are the new media the same? Do they also only focus on a few important issues day after day, serving much as a searchlight, only shifting its beam in response to important events, crises, or situations? At the dawn of the Internet age, the hope was that the Internet would be a panacea of information, representing the many issues that occupy varying sized pieces of the national agenda. To extend Lippmann's analogy, the Internet

media would be like the sun flooding the ocean with light. All of the issues in this ocean of policy questions would be bathed in a warm light.

Similarly, the new media would not simply be a replication of the traditional media online. They would be something more than the stories covered in *The New York Times.* Newspapers were notorious for mimicking each other—the stories in one paper would frequently be printed in other papers as well. The rise of institutions like the Associated Press (AP) and the United Presswire (UPI) fueled these tendencies. If the new media are to be judged as fulfilling their promise, they would still have these mimicked stories, but they would also be filled with content, information, and ideas on topics not found elsewhere, particularly in the traditional media.

There would be a cornucopia of information available online—people could access information crucial to fulfilling their democratic responsibilities. This would be true no matter what the information was or what topic an individual wanted to learn about. It would be available in the endless ocean of information that the Internet was once envisioned to provide. But it would not just mean that this information would be out there, lost in cyberspace. Conversation about this wide variety of topics would be sustained. With the low-costs of entry and lack of forces limiting coverage, there would be sustained conversation about a variety of sources. In the traditional media, huge swings in coverage are observed. For example, if there is a massive terrorist attack, coverage goes from zero to a commanding proportion of the total coverage being dominated by this single event. More often, certain stories surge onto the agenda for a certain period of time and then fade away. This can be obviously seen with an event such as the Olympics occurring every four years.

This is the utopian vision of the Internet as a perfect, original, and constant source of information on the whole gamut of policy issues. But, the Internet we use each day does not appear at first glance to completely reflect this vision laid out by many in the mid to late 1990s. But to what extent this vision of the Internet as a new media force capable of fulfilling what Lippmann believed the press truly needs to be is unknown. In this thesis, I will examine both traditional and new media sources to attempt to answer the question of to what extent the new media has realized this utopian vision for the Internet, looking specifically at the diversity, volatility, and amount of friction in coverage in the traditional and new media with a particular focus on American and international newspapers and political blogs and Twitter.

To formally define these different types of media, I will rely on the definitions provided by several scholarly publications that I used in formulating my own theory and designing my study. *Social media,* or new media as I often refer to it, are "electronic communication platforms that convey content generated and exchanged by users" (Auer 2011, 710). *Twitter* is a type of social media technology that allows for the rapid transmission of 140 character fragments on a nearly endless range of topics. It is frequently referred to as a form of microblogging (Hermida 2010, 297). *Blogging* is a very broad term but refers to a new form of media without centralized organization and written in a variety of styles on a variety of topics (Farrell and Drezner 2008, 16). Blogs are generally written by one author and posts are displayed in reverse chronological order. The *traditional media,* as I categorize it, refers to non-Internet forms of political communication including newspapers, magazines, and television. *New media,* for my purposes, are strictly online media including blogs and social media networks. These

assumptions carry forward into all discussions using these terms.

The media are typically considered an important part of the political world, especially in the United States. Regardless of the comparison to a fourth branch of government, the media have important effects in politics and can serve an agenda-setting role (McCombs 2004). Frequently, the media agenda (that is, the set of issues being given attention at a specific point of time by the media) mirrors the public agenda (the set of issues deemed important by the public and which they believe should be acted upon by the government). Boydstun (2013) writes, "Media attention matters, this much we know. News coverage frequently shapes which issues people think about, how they think about them, and often what actions government takes" (33).

McCarthy, Smith, and Zald (1996) make the subtle distinction between public and media agendas clear. While there is a high degree of correlation between the two, the most important issue in each is not always the same (295-296). They also define what they refer to as the "media arena." McCarthy et al. explain "The media arena is far more centralized than the public arena, and access to it is more difficult for social movement actors. Nevertheless, its gatekeepers – local and national reporters and editors – are typically more accessible than the gatekeepers of the governmental or electoral agendas" (296). They further explain that conquering the media arena is important in enacting policy change.

Cook (1998) argues that the news media are an important political institution, but puts them more on the level of parties or interest groups rather than one of the three branches of government (110). On the other hand, Kingdon (2003) finds that, in reality, the media have a fairly small effect on policymakers and that many of these individuals

actually express a disdain for the mass media in his study of national agenda-setting in the United States. However, he recognizes several important roles for the media within policy communities. Importantly, he says that insofar as the media affect public opinion agendas, it is possible that they wield a larger agenda-setting influence than his research directly suggests. In 57% of his interviews, public opinion was said to be an important indicator in agenda-setting (65). In any case, the media are an important part of politics. For that reason, this thesis and many other studies before it, are written about the media from a political science perspective.

This is a relevant part of a blossoming research agenda. We are at a crossroads in history. We stand somewhere in between the ideal Internet utopia once envisioned and a complete (albeit hyperbolical) Internet dystopia—a replication of traditional journalism and resources online, a reality that would be not so different than the traditional media. This does not mean it is a bad place; it is just more similar to the media of the past. The Internet presents a powerful resource for the creation and dissemination of information, much of it by individuals who previously could not get their voices heard by the masses. But, it is not perfect. Aspects of traditional journalism have made their way onto the Internet in the form of online newspapers complete with the traditional gatekeepers and not all information is free—much is shrouded behind pay walls and password protected members only areas. I will pay particular attention to the way that it has changed and put these changes in a greater context. It is important to be aware of these changing characteristics and to ensure that research is up to date in light of the significant influence that the media can exert on policymakers.

Matthew Hindman (2009) presents an analysis that seeks to reconcile the conflict

between this Internet utopia and dystopia. Although there were great hopes for the Internet as a democratizing force in America politics, that reality has yet to come to fruition. Instead, Hindman calls these sorts of conclusions premature. He sees the Internet as a good force and while it has allowed more people to speak publicly, it has not been much easier for the average person to be heard. He writes, "The Internet has served to level some existing political inequalities, but it has also created new ones" (19). Others, such as Coleman and Blumler (2009) and Margolis and Resnick (2000) reflect much more optimistic initial views of the Internet's potential. Many of these studies suggest that the use of the Internet may lead to higher rates of political efficacy and greater civic engagement, especially among certain groups, such as the young. Though my study does not directly measure these variables, they too are reflective of some of the hopes for the Internet and politics.

Based on this situation and the changes that have occurred, there are several predictions that I make here, early in this thesis, of how coverage in the media might manifest itself based on these competing realities between an Internet information utopia and an Internet where we mostly see more of the same. Here, I will also provide some general theoretical principles that might help to explain these possibilities. In the next chapter, I will undertake a more thorough literature review to highlight some of the studies that have been conducted that use similar methods to mine or analyze media coverage in general.

If the Internet utopia were to be reality, there are several characteristics of the media that I would expect to be true:

- There is a greater diversity of attention in the new media than in the traditional media.
- Issues in the new media are represented in proportion to their actual importance to a wide variety of users and news producers, and not filtered through the bias of relatively few gatekeepers.
- Attention shifts smoothly over time in proportion to shifts in the events of the world in the new media rather than the highly volatile shifts observed in the traditional media.
- The new media are not governed by the status quo effect common to the traditional media and attention is distributed independently.
- The new media display less friction than the traditional media.

On the other hand, we are at a point where it can be said with fair certainty that this information utopia is not reality. Those achievements have not been realized online. However, that does not mean that the Internet media are completely the same as the traditional media that they seek to supplant, or at the very least, complement. To best understand that situation, it is useful to view it in contrast with what could be called a complete Internet dystopia. Then, throughout this thesis, I will be able to discuss where in between the media might fall. Some predictions that arise from this situation include:

- There is a similar level of diversity of attention in the new media compared to the traditional media.
- Gatekeepers still play an important role in the new media as in the traditional media.

- Attention in the new media is similarly volatile to that in the traditional media. It is still characterized by significant disruptions and swings in attention.
- A similar number of conversations can be sustained in the new media compared to the traditional media. The status quo effect is still observable.
- The new media has a similar level of friction compared to the traditional media. The effects of friction are observable.

In order to reconcile this situation—a media climate caught in between an idealized vision for itself and an Internet dystopia that looks much like a replication of the traditional media online—a strong theoretical base underlying these ideas is helpful. The following paragraphs are a preliminary attempt to highlight some of the theory that allowed me to hypothesize these statements in the way that I have. In the substantive chapters in the remainder of this thesis, I will develop a more complete theoretical and analytical explanation for my actual findings.

Over time, the public agenda as represented by media coverage has become more diverse (McCombs and Zhu 1995). The new media could be the culmination of this progression. Users tend to receive information from more media sources via Twitter for example (An et al. 2011). If all of these sources pay attention to the same topics, however, this may not be true. I expect that the greater representation of sources online will manifest itself in the form of greater diversity of attention in the new media, even if marginally. The idea of these competing worlds is to find out how much more, in order to place the Internet as it exists on this continuum. McCombs (2004) argues that diversity in the agenda "is significantly related to the number of newspaper, radio and television voices in the community" (McCombs 2004, 51). With an even greater number of voices

present in the new media, I expect to observe an increased diversity in issues and coverage. Inter-media agenda-setting effects may mitigate some of this diversity if it is revealed the new media almost always copies the traditional media or vice versa.

Unique to the new media is the networked nature of blogs and Twitter. This unique characteristic of the new media could account for a large increase in the diversity of issues represented. Blogs, unlike the traditional media, frequently incorporate hyperlinks to similar resources (although often from a different point of view) on other blogs or in the old media (Farrell and Drezner 2008). Because of this linked nature, I expect there to be a greater diversity in attention because of this plurality of sources. Associated with this multitude of sources should be an increased diversity of stories as different outlets strive to be original. This networked nature carries over to Twitter, where users are able to engage in conversation with essentially anyone else on the network, making the diversity of discussion on the network even broader (Lasora et al. 2012). This tendency, however, has never been demonstrated or confirmed by an actual analysis of both blogs and Twitter.

Given the lower cost of publishing information in the new media, a greater number of voices and sources present, and the lack of traditional limiting factors like advertising needs or gatekeepers in the traditional media, I expect that in the Internet utopia there is a greater diversity of attention to different topics in the new media than in the traditional media. In discussing this phenomenon in the following chapters, I will evaluate the diversity of the media agenda in both the traditional and new media. By doing so, I will be able to assess whether the new media might actually be subject to some of the same constraints as the traditional media despite the possible utopian vision.

As discussed, the new media, especially in the utopian vision, are not subject to as many of the constraints that the traditional media are subject to. However, it is unrealistic, but reflective of this vision, to predict that there could be a perfect representation of all topics in the new media. On the other hand, I expect to observe that unlike in the traditional media in which most literature suggests that most attention is dedicated to relatively few topics, such as foreign policy, elections, or defense rather than less popular topics like agriculture or homelessness, that the new media will distribute attention more proportionately based on the actual importance (still through the frame of the audience, or users in the case of new media) of the issues at hand. Overall, the new media should be reflective of a reality that is not dominated by biased editors or publishers driven by advertising budgets and corporate pressures.

In Chapter 5 when I discuss the way in which attention is distributed in these media agendas, I will evaluate how similar or dissimilar the way in which attention is distributed across different issues is. If the new media are actually more of a reincarnation of the traditional media, then a significant amount of attention will again be distributed to relatively few topics not based on importance, but rather based on other factors I will further explore in my coming discussions.

In the traditional media, coverage over time is highly volatile and like with other agendas is characterized by what Baumgartner and Jones ([1993] 2009) call punctuated equilibrium. This is the idea that changes in agendas occur rapidly and dramatically in response to events whether they are suddenly truly important or not.

In the new media, I expect these shifts to occur more gradually. Newspapers and newscasts can generally only change once per day. That means that day-to-day, their

attention to certain issues might vary more than the new media. The Internet allows for sustained conversation about small issues that would never make it into a newspaper or onto a newscast even if they were important. Twitter lends itself particularly well to this tendency. Users can instantly transmit information to other users as events unfold in front of them (Hermida 2010). It is not like the front-page of *The New York Times* where there is a quite finite amount of space. On the Internet, "space" is cheaper and thus conversation can be more sustained and the shifts seen will appear less dramatic. If the new media are more similar to the traditional media in this respect than the vision of the Internet utopia would anticipate, then the shifts will be equally marked.

The status quo effect would dictate that the topics most likely to be covered in the media tomorrow are those issues covered in the media today. Various studies have shown this to be true in various traditional media outlets; however, in the Internet utopia, I would envision that topics covered would be determined independently based on the day's events. Boydstun (2013) finds this to be particularly true in *The New York Times*, where she observes a high friction environment. Again, I expect my findings to land somewhere in the middle of this spectrum, between the utopian and dystopian views I have laid out.

The idea of friction will be further explained in Chapter 6, but assuming the traditional media exhibit high levels of friction, that is, it is hard for coverage to move from one issue to another over time and when it does it is characterized by marked shifts in attention, since attention changes more gradually in the new media, it would also have less friction. In the perfect world, there would be no friction—any issue could receive a lot of attention because there are no constraints such as space on a front page, time in a

newscast, or a publisher overly concerned with advertising revenues. This can be measured in a variety of ways and I will test this prediction in Chapter 6. If the new media have relatively lower friction that the traditional media, that means there is a greater evolution towards the Internet utopia.

This rest of this thesis will take the following form. Next, in Chapter 2, I will continue to provide a review of the current literature on media agenda-setting and how coverage is determined in the traditional and new media. In Chapter 3, I will discuss how I collected the data used for my analysis and operationalized it. In Chapter 4, I will describe these datasets in general terms in order to provide important context to the remaining chapters. Then, in Chapter 5, I will analyze and discuss the diversity of coverage and attention in my data using the measure of entropy. In Chapter 6, I will examine the volatility of coverage and determine which types of media exhibit the most friction in coverage. Finally, in Chapter 7, I will bring all of these ideas together to provide a cohesive assessment of to what extent the Internet has fulfilled the expectations many placed upon it, evaluate the democratic potentials of the Internet media as it currently stands, explain why all of this matters for current policymaking both in the United States and around the globe, and provide suggestions for possible further research.

Chapter 2: The Media as a Changing Institution

The media have firmly planted themselves as an important institution in American politics (and that of many other countries). Because of that, there have been many studies not just on the impact of the media on politics, but which focus on the actual content in the media like I am focusing on in this thesis. Given that this thesis primarily addresses the spread of attention and the fluctuation of attention over time, this brief literature review will discuss other studies and research projects that concerned themselves with the content of different types of media. Political scientists began to pay considerable attention to the media sometime in the mid-twentieth century as the mass media really began to be consumed by the masses. Therefore, much of the literature focuses on the traditional media, primarily newspapers and in more limited cases, television news. However, in the last decade, there have been several, but not many exhaustive studies of new media sources, particularly blogs, and their content and how those websites influence politics.

Media Agenda-setting

Several important works on media agenda-setting have been written by Maxwell McCombs. McCombs and Shaw (1972) conducted a seminal study on the influence of the mass media on the national agenda by determining what issues the public (in this case voters) sees as important. The researchers concluded that the media appear to have a considerable influence on what the polity deems to be important. McCombs and Zhu (1995) followed up on this initial research as the media climate expanded to include a wider variety of sources. They examined the capacity, diversity, and volatility of the agenda. McCombs and Zhu used public opinion polls and data similar to that in the first

study. The first finding is that there has been no monotonic increase in the issue-capacity of the agenda, but that individual education does increase public issue-capacity. They also observed an increased diversity in items on the agenda and lastly found that the amount of time an issue spends on the national agenda has decreased over the years. McCombs and Zhu's focus on the capacity, diversity, and volatility of issues on the public and media agenda parallel my research in many respects. Although the time and arena of analysis is quite different given the new media climate, I will pay significant attention to this study as an example of analysis as I move forward. Additionally, McCombs' career contributions of demonstrating the importance of media in politics emphasize the importance of this type of research.

McCombs (2004) brings all of this research together in a book that discusses the impact of mass media and public opinion on the national agenda. Like other authors, he emphasizes the powerful media agenda-setting effects of *The New York Times.* In this case, the media are able to exert significant mimicking effects thereby possibly decreasing the overall spread of attention.

Like I am setting out to do, Strömbäck and Kiousis (2010) conduct a cross-media analysis to determine which type of media has the most powerful agenda-setting effects, and thus consequently which media agendas are most important in studying policymaking. They focus on true issue salience rather than salience as determined by the public unlike Kingdon (2003). They point out that institutions like *The New York Times* are extremely important actors in agenda-setting. However, their study is unable to confirm that one type of media is more important than all others in affecting change on agendas. However, Strömbäck and Kiousis write, "The results show that the media are

influential in affecting perceived issue salience—that is, the extent to which people think that the issue they find is the most important will affect their voting in the election" (287). Thus, my study of media agendas reaching a wide array of people has significant relevance even in the larger policymaking picture. More specifically, Strömbäck and Kiousis show that multiple types of media are able to influence politics, transcending much of the traditional literature focused solely on outlets such as newspapers.

Baumgartner and Jones ([1993] 2009) provide another, more recent look at agenda-setting and present their theory of punctuated equilibrium. They study the overall attention to various issues in both the media and within policy circles. Their theory of punctuated equilibrium rests on the premise that there are short bursts of media and policy activity surrounding events. The authors observed that the media's shifting attention is a major source of instability in American politics and public policy. They attribute some of this to the fact that media outlets are a business and must make money. They further state that neither the media, individuals, nor the political system ever focus long on unique dimensions of the same issue. They also observed strong swings in attitude towards issues—going from positive to negative coverage or from little coverage to very intense coverage. Baumgartner and Jones write, "attention may rise and fall even without important changes in how the issue is framed. In any case, attention often is sporadic, not sustained" (125). Rather than specifying a correlation between policy and media coverage, Baumgartner and Jones view this relationship as a two-way street, with positive and negative reinforcement loops where the media are affected by the government and vice versa where the government is affected by the media. These are trends observed in multiple agendas, including congressional and media agendas. The

two authors clearly demonstrate that many agendas are highly volatile. While they have shown that an agenda like the *Times'* is volatile, this thesis will expand on that analysis and seek to identify whether similar trends are observed in other media such as blogs.

In another book, Jones and Baumgartner (2005) discuss the way attention is distributed in policy systems. Again, they argue that attention changes over time and that the government and other actors prioritize problems in predictable ways. However, this work makes clear that not all issues can receive the same amount of attention so that actors are forced to respond to certain cues in prioritizing problems. I use some of their methods of analysis in my study, especially in studying how attention changes over time in Chapter 6. While the previously discussed book by Baumgartner and Jones ([1993] 2009) provides a greater theoretical base on which my discussion is pinned, Jones and Baumgartner (2005) offer an analytical model that is similar in many ways to parts of my own. They find that agendas, including the media's, are typically very "sticky" and have high levels of friction. Typically, these agendas are dominated by a status quo effect that on a very basic level says, "if it's on the front page today, it's likely to be on the front page tomorrow too." Again, I will expand this analysis to new types of media agendas.

Many of the studies of media agenda-setting have been limited to one form of media—either newspapers, television news, etc. Golan (2006) performs a study across two different media—newspapers and television news to study what he calls inter-media agenda setting. Golan performed a content analysis of one year's worth of *New York Times* front pages and the evening news casts of *ABC*, *CBS*, and *NBC*. Golan was interested in the effect of the *Times'* coverage of international news on the decisions of the television news gatekeepers. He concluded that the *Times'* international coverage did

affect the coverage of the networks' broadcasts that evening. Golan's study is an important example of the type of cross-media study I plan to conduct. It also suggests that a uniform level of diversity of attention across different types of media is possible.

Several papers have been written by participants of the Policy Agendas Project, originally created by Frank Baumgartner and Bryan Jones, the authors of the previously mentioned books, that have specific relevance to the analysis I will undertake in the coming chapters. Aside from their findings and theoretical contributions, these papers served as important inspirations for the analysis undertaken in this thesis. Boydstun, Hardy, and Walgrave (N.d.) conceptualized the idea of media storms in an analysis of *The New York Times* and Belgian newspaper *De Standaard.* Media storms are essentially bursts in coverage that occur in the media in response to significant events and then fade away slowly. These storms are also generally considered to surround issues important to the public. However, they find that media storms do not follow the same tendencies as apply to other media coverage despite being significant parts of media coverage. The authors argue that the implications of their study "could also be instrumental in bringing about these well-known surges in political and public attention, since media attention both represents but also drives how people, both citizens and political elites, process information. Thus, media storm dynamics may make us help to think about media effects in a non-linear, conditional fashion" (N.p.). The three authors took an in-depth look at two specific media agendas. However, the emergence of this idea of media storms might explain lower diversity of attention given intense focus around one topic and why a media outlet might appear to stick to covering one issue for some time.

Boydstun, Moody, and Thomas (2010) write what in many ways could be seen as

a precursor to this thesis—what they claim to be "the first empirical comparison of newspaper, television, and internet news sources simultaneously" (6). My analysis expands on this in a more comprehensive and standardized manner across all involved media types. I chose points of my analysis from this article specifically around the ideas of attention diversity and change over time. One of the authors' central predictions is that "although internet news and blogs still operate strongly under the goal of capturing viewership, we expect these sources to focus less than these other sources on topics 'that sell' like crime" (12). In the end, Boydstun, Moody, and Thomas find that although many scholars have argued that there is a single media agenda, in today's world, we actually have several different media agendas at a time (24). I expect the same to be true in my analysis. They further promote the idea that these media agendas do often mimic each other, another characteristic I would expect to observe in my datasets.

Their colleagues and collaborators, Lovett and Baumgartner (2012) draw on similar questions to find when there actually is a single media agenda using a factor analysis based on keyword searches of many traditional media sources—both newspapers and television. This paper also served as a critical inspiration to my own as my methods evolved over the course of this project. They find that in some cases there is a single media agenda across multiple media types at specific points in time for certain topics, while in others there is not. Thus, there can be a single media agenda, but there is not always and it depends on a variety of factors.

Since my analysis will also touch on international (traditional) media sources, examining articles dealing with foreign media outlets is also relevant and important. Baumgartner and Chaqués (2012) conducted a study of the front-page stories for

approximately ten years of two Spanish national newspapers of different partisan leanings. They found that the media in Spain is highly partisan with each paper mentioning certain political parties more and in different lights. However, their most important finding for my own discussion is that characteristically, the two papers were highly similar in terms of diversity and friction of their agendas. I also use the datasets created and used by Baumgartner and Chaqués in my own analysis.

The final Policy Agendas paper's contributions I wish to discuss compare the stories on the front-page of *The New York Times* and those in the full paper (or, on the inside pages). Wolfe, Boydstun, and Baumgartner (2009) did this analysis in the run-up to Boydstun's book length project that I will discuss next. They find full paper coverage to be more diverse and to exhibit less friction than front-page coverage. They write, "Full-paper agendas are able to capture high, medium and low salience issues and can follow policies from their subsystems to their breakout on the macropolitical arena" (20). As I will conduct data analysis on both the front-page and full-paper (index) datasets, I will further discuss their comparisons in later chapters when relevant. Wolfe, Boydstun, and Baumgartner used highly similar methods of analysis in their study of the diversity of the two agendas as I will use in Chapter 5. They found that the overall newspaper was slightly, but not markedly, more diverse than just the front-page.

Boydstun (2013) also has a forthcoming book that takes an in-depth look at the *Times* dataset that I will use in my own analysis. That dataset forms the basis of the new book. In this work, Boydstun analyzes the *Times'* front page stories for both the spread of attention and the change over time. She also conducts a simulation to measure the explosiveness of the media agenda represented by the *Times.* She observes that the front

page of *The New York Times* has a highly finite amount of space and it is difficult to get new issues onto the front page. She also finds that there is a high level of friction or stickiness in the stories on the front of the paper. Relatively few topics are commonly represented on the front page according to her analysis. Boydstun writes, "Today's U.S. media marketplace is highly concentrated (i.e., a few conglomerates own most of the news outlets) and highly competitive—and becoming more so over time" (62). It is an economically dominated sphere about producing the news that sells. This explanation is indicative of the low diversity, high friction environment Boydstun observed in the *Times* using the same methods I will use.

My own discussion in this thesis will be based on Boydstun's analysis and I will mention her findings numerous times. Her methodology forms the basis of the methods I will use not only to analyze her data, but also the new media datasets. She also develops a model for predicting the news coverage, which is mostly based on prior attention or what is referred to as the status quo effect. My research will confirm and then expand the scope of Boydstun's findings. Depending on my results, Boydstun's explanations for why space is so difficult to come by on the front page of the *Times* might help to explain how attention is distributed in other types of media.

Theories of Media Decision-making

Shoemaker and Vos (2009) present a study on gatekeeping, a specific theory of the way that stories make it into the mass media. The theory of gatekeeping is especially interesting when applied to many new media sources. Many studies and articles utilize gatekeeping theory to analyze particular journalistic actions and decisions. The central idea of gatekeeping is that there are various levels that a story must pass through in order

to make it into a newspaper or onto the news. Shoemaker and Vos readily admit that the Internet has changed gatekeeping and that audience members have for the first time been turned into gatekeepers. Previously, various writers, reporters, editors, and publishers were the principal actors in the gatekeeping process and were governed by a variety of institutional and personal factors. They decided which issues were important and what should make it into the news, or through the lens of other authors, what makes it onto the media agenda.

At the individual level, Shoemaker and Vos (2009) conclude there are few rules for gatekeeping. At the end of their study, based largely on time series analyses, Shoemaker and Vos discuss gatekeeping in the 21st century. The constantly changing nature of the media has reshaped things. They write, "Not only is CNN present around the globe, but so are other news organizations. Thus, organizational routines from one social system are being exported to other social systems where different political, economic, and extra-media influences operate" (133). Globalization has changed the way the media make decisions as well. For the purposes of this thesis, Shoemaker and Vos leave open some interesting questions about the new role of gatekeeping as traditional constraints and processes are challenged. Their commentary offers a theoretical explanation for certain tendencies I observe in my own analysis.

Though the theory of gatekeeping summarized by Shoemaker and Vos is truly central to studies of media decision-making, other authors use a similar framework to analyze the way what constitutes news is determined. Berkowitz (1990) looks at the constraints of gates in decision-making in local television news. Similar to the analysis I will conduct, Berkowitz based his study on topic categories of coverage. The most

important finding of this article is that gatekeeping is an incredibly complex process despite the systematic way in which it is often broken down. Berkowitz found that television used gates differently than newspapers or wire services might and that these decisions were often made in groups rather than one individual controlling the decision-making process (64). Given the finding that television and newspapers make decisions differently from one another, it might be reasonably expected the bloggers or journalists on Twitter would also make gatekeeping decisions differently than might be made in the confines of a print newspaper. Thus, their coverage could also be expected to differ.

Herbert Gans ([1979] 2004) conducted an important study originally in the early 1970s of several traditional media outlets including TV news outlets and magazines. He offers an assessment of how the media decides what makes the news. The book examines the actors, values, and constraints placed on actors in the media. In many ways, it is a precursor to later theories of gatekeeping rooted in studies of the media from the 1960s-1970s. Gans points out many constraints placed on actors including corporate pressures and advertising. He emphasizes the power given to editors and publishers of different media outlets. The way in which he saw stories make the news was almost economic in nature, focusing on what news sells since there were always more stories that could be published than there is room to publish. He also found that there was significant division of labor in media outlets and that the news media almost operated like an assembly line made up of reporters, editors, and producers.

Gans ([1979] 2004) does find that some factors are more important than others in determining what makes it into the news publication or show that the audience reads or sees. He writes, “Some considerations turn out, in the end, to be subsidiary. For example,

organizational considerations are generally adaptions to the imperatives of story selection and production…The journalists' enduring values are also subsidiary" (281). At the end of his book, Gans shares a vision for a more utopian media nearly reflective of the Internet utopia that I have previously laid out. Gans predicts that "To be more utopian: commercial considerations might disappear entirely if journalists owned their own news organizations and ran them communally or with some form of worker control" (287). This sounds quite a bit like the blogs and Twitter that make up the new media today and are covered in my analysis.

Two previously mentioned works also provide substantial theoretical suggestions on how the media, when seen as a policy actor, might make decisions in what to include in their tight agendas. Baumgartner and Jones ([1993] 2009) and Jones and Baumgartner (2005) both address the ways in which actors prioritize issues in policy systems. In both works, the authors argue that policy systems respond in highly volatile manners in response to real world events. Extrapolating this theory to the media, it is easy to say that the media respond to real world events and other policy cues in distributing their attention to different policy topics, and in deciding when to shift attention (especially in the case of large, rapid shifts) from one topic to another.

Shoemaker and Vos (2009) make clear that there are certain economic factors that go into the gatekeeping decisions made by media personnel. Hamilton (2004) takes this analysis further and frames the news as an economic good. Fundamentally, the news can be understood as a good as can the journalists producing the news. He argues that in the Internet media, the economic understanding of the news is changing (190). Journalists, particularly those in television news, are often viewed as economic goods. Thus, with the

changing dynamics in the modern media, these goods can easily be gotten rid of—that is, they can be fired. This helps to explain what many call a decline in journalism as newsrooms shed hundreds of jobs. This has been a problem that has not only plagued small local newspapers and TV stations, but also major national newspapers such as *The New York Times* and *The Boston Globe.* This trend is intrinsic in the current media transition.

These studies on media decision-making processes are highly relevant to my own research. The way that these decisions are made is crucial to fully understanding how attention is distributed and changes over time. Without that understanding, it appears that this attention is completely random. Since we know that the traditional media are strictly governed by multiple levels of gatekeepers, we can use that fact to assess how the new media, which is governed by fewer gatekeepers and pressures, might differ from the traditional media. The previous studies all had to examine content in order to understand the dynamics behind the decisions being made in the media. Based on my findings about differences in coverage between the traditional and new media, I should be able to discuss, as I predicted in Chapter 1, whether there are less gatekeepers in play in the new media than the traditional media.

Studies of the New Media

The new media often appear to be a replication of ideas and stories found in other sources. This is not so different than newspapers mimicking one another. There is a trend of "cannibalization" of stories that has increased with many stories simply being slightly different versions of stories written by other journalists. This is particularly true on blogs (Phillips 2010, 96-97). Additionally, political bloggers rarely do original reporting, thus,

they are highly reliant on the traditional media to form the backbone of their posts (Wallsten 2007a, 568). Therefore, these studies suggest that the new media agenda represented by blogs might not live up to its potential as a diverse source. Bloggers may, however, transform the meaning or tone or put a particular spin on an issue. That does not diminish the echo-chamber effect though—they are still creating content based on cues from the traditional media.

Other authors such as Meraz (2011) and Woodly (2008) argue that blogs actually exert an influence over the traditional media. In that case, the new media are the leaders and I would expect to observe less mimicking in the new media than the traditional media. Where inter-media agenda-setting characteristics fall on that continuum between the Internet utopia and dystopia remains to be pinpointed. I personally think it will be closer to the Internet dystopia with a large amount of mimicking still present and thus a similar level of diversity.

Other studies have also found a similar effect to what was observed in the traditional media as early as the mid-twentieth century. Boczkowski (2009) observed a large amount of imitation in the new media at large. He argues that technology has facilitated this process to a large degree. News organizations appear to be less autonomous than in the past. The author of this article writes, "The expansion of mimicry was evident throughout the research. Whether a piece of information coming up on the wires, seen on a television program, heard on the radio, or looked at on the Web was selected for inclusion in a news story depended in part on whether other media also had it" (Boczkowski 2009, 49). Thus, this continued evidence of mimicking in the new media is suggestive that the traditional and new media might be more similar after all, especially

when it is merely concerned with inclusion of certain subjects or facts. This study again suggests that diversity of attention might not be as high as expected. Though these studies differ in their qualitative approach from my own, they are extremely relevant examples of studies of the content present in the new media.

Klotz (2004) writes about how the Internet is altering journalism and takes a relatively positive, but clearly cautious attitude towards these effects. In a way, Klotz offers a counterfactual to the previous authors who take a more negative approach to a highly partisan sphere or, in the other case, suggest that the new media might not be all they are cracked up to be. Principally, he suggests that though the Internet will not radically change the amount people care about some topics, it will provide a wide array of opinions and niche topics that some people might be more interested in. Information might be information. People will get the information they ultimately need to make their decisions—at least that is the hope. Klotz takes an increased diversity of attention for granted—something I will measure empirically—and spins it as a positive for democracy.

Many other works have studied blogs in specific. Pole (2010) writes, "Political communication in the blogosphere is unlimited in scope and magnitude" (5). Based on that, a greater diversity of information or a plurality of information is to be expected in the blogosphere. Pole contends that information transmission has been fundamentally altered and that the importance of traditional media institutions has been somewhat diminished (5). Blogs also offer the potential to shape political discourse (129) and have opened new avenues for participation (127). Pole makes the note that bloggers do not normally have to answer to anyone in the way that most journalists do and that entry-costs into blogging are extremely low (128). In concluding, Pole offers a very optimistic

and promising look at what the blogosphere can hold for American politics.

While many studies of blogs have used hyperlink analysis to gauge the connections between both blogs and the traditional media, Meraz (2011) undertakes a time series analysis using ordinary least squares regression and Granger causality to analyze the inter-media effects of political blogs on both the traditional media and the traditional media's online blogs. The author concludes that her analysis has confirmed the findings of hyperlink studies and finds that political blogs have been able to set the traditional media's online agenda. Further, blogs have begun to more closely resemble traditional media sources. The Huffington Post is an example of this tendency. Additionally, strongly leaning political blogs have also begun to exert moderate influence over the traditional media, especially on specific issue agendas.

Wallsten (2007a) presents the theory that bloggers have been able to exert considerable media agenda-setting powers. He finds that there is a bidirectional relationship between the mainstream media-agenda and the blog-agenda and that both forms of media feed on one another. Wallsten selected prominent political blogs in the United States and analyzed their content to attempt to determine the relationship between the traditional media and political blogs. He concedes that political bloggers still rely on the traditional media for their content, but their interpretation and portrayal of such content can have significant agenda-setting effects.

In another article, Wallsten (2007b) studies the way in which bloggers use their political blogs. He measures blog use by coding 5,000 blog posts based on the intention of the post (25). He found that A-list and other bloggers use their blogs in similar ways (30). Wallsten concludes that "political blogs are complex forms of political participation

that contain a mix of opinion statements, mobilization attempts, requests for audience feedback, and links to information produced by others" (33). In contrast with the traditional media then, blogs are not just sources of political information, but are more interactive political tools. This might be measured as a greater level of diversity of attention. Other authors I have discussed, like Baumgartner and Jones ([1993] 2009) show that the media respond to events. Wallsten also explains, "although political bloggers use their blogs primarily as soapboxes, blog use changed significantly in response to key political events" (33). Thus, coverage in blogs might change in ways similar to the traditional media although they are clearly a new force in politics—one that seems to have significant democratic potential given the interactive possibilities. In both of these articles, Wallsten's arguments point towards a volatile blog agenda. This thesis will find whether that democratizing potential translates into any measurable change in coverage that might have been envisioned.

It is also no surprise that information and trends can be highly viral on the Internet. Nahon et al. (2011) studied viral information in political blogs during the 2008 presidential campaign. They demonstrate that the linked nature between blogs allows for the spreading of viral information. Although the authors caution against using just elite blogs as representatives of the entire blogosphere when studying it, they explain that elite bloggers are generally the ones responsible for the creation of information and the initial spread of it. Therefore, their discussion undermines this caution to an extent. They also find that the information lifecycle in the blogosphere is highly volatile and short. Viral information feeds into this tendency. This study of how coverage changes over time in the blogosphere might be reflective of a media world with a new type of friction present

that allows viral trends to quickly take hold but also quickly fade away.

Although research has certainly been conducted on the political ramifications of communication via Twitter, the majority of the research done on the new media has been concerned with blogs like the literature I just finished describing. I was not able to locate any studies that focus specifically on the content of Twitter as it relates to political communication. However, other studies of Twitter were helpful in guiding my methods as will become evident in upcoming chapters. All of the previously discussed literature relates specifically to a content-based analysis of media agendas and how that relates to politics. This thesis in many ways will be unifying. It will bring together studies of the traditional media and multiple new media forms in order to offer a cohesive assessment of the possible political impacts of the new media in contrast with the traditional media. To accomplish this task, it employs a highly standardized analytical process across all types of media.

Chapter 3: Data Collection and Processing Procedure

The analysis in this thesis relies on a large amount of data on both the traditional and new media from both the United States and elsewhere. I collected some of the data myself and other data was collected by other researchers or research teams and provided to me. In this chapter, I will describe how all data used were obtained, either through others, or, in the case of the new media dataset, how I collected and managed this data. In Chapter 4, I will provide a description of the data in these datasets. Here, I am just concerned with my data collection methods.

Professor Amber Boydstun, the project director, of the University of California-Davis provided me *The New York Times* front-page dataset. That dataset is used in her forthcoming book *Politics, the Media, and Agenda-Setting* (2013). It was coded using an adapted version of the Policy Agendas codebook originally developed by Baumgartner and Jones.[1] The full codebook and coding instructions are available upon request from Boydstun or the author. I also use and refer to the Policy Agendas Project *New York Times* Index[2] also originally created by Baumgartner and Jones.

For all international data on traditional media sources, I obtained the data directly from the authors or lead researchers on the project. See individual country codebooks for more information on the methods of data collection for each dataset.[3] All were coded according to that country's agendas codebook, modeled after the US Policy Agendas

[1] http://www.policyagendas.org/page/topic-codebook

[2] This data were originally collected by Frank R. Baumgartner and Bryan D. Jones, with the support of National Science Foundation grant numbers SBR 9320922 and 0111611, and were distributed through the Department of Government at the University of Texas at Austin. Neither NSF nor the original collectors of the data bear any responsibility for the analysis reported here.

[3] See www.comparativeagendas.info for links to individual country project sites for researcher contact information and for individual country codebooks.

Codebook. These codebooks and data are also available upon request from the researcher or myself.

I collected and coded all of the data comprising the new media dataset during the period beginning in May 2012 and ending in August 2012. To select the blogs to be part of my sample, I used a hybrid approach to randomly sample thirty blogs to be part of the set. The approach was loosely modeled on Wallsten's (2007a), particularly the idea of randomly sampling a manageable number of blogs from a larger list of influential blogs. The list I sampled from included the Top 100 US Political blogs (based on data current May 10-13, 2012) from Technorati[4], a blog aggregator and search engine that ranks and indexes blogs on different topics, the top 50 Political Blogs according to the Blog Authority Index[5], also known as the BAI (Karpf 2012a). This data was also current as of May 2012. Several blogs not found on either list but present on a running list kept by Professor Justin Gross of the University of North Carolina at Chapel Hill were also included. After combining these lists and eliminating duplicates, I had a list of 180 influential political blogs. In Stata, I took a random sample without replacement to yield a list of thirty blogs that would comprise the blog dataset. [6] To see the full list of blogs used in the sampling procedure, see Appendix 3.1. Although I pulled lists of influential blogs

[4] www.technorati.com
[5] http://www.blogosphereauthorityindex.com/
[6] In one case, technical difficulties immediately prohibited the use of the blog The Inquisitr as part of my dataset. That blog was removed from the dataset. With the remaining 152 blogs not selected in the original sample, I randomly sampled without replacement for one additional blog. As a result, the Daily Kos was added to the dataset. During data collection, another blog, The Political and Financial Markets Commentator, was eliminated from analysis due to technical difficulties. It was not replaced by another blog because data collection had been ongoing for over a month and replacing it would not have been feasible because its replacement would not have been adequately represented in the full blog dataset.

from various sources, it is important to note that "All A-list blogs are not created equal" (Karpf 2008, 41). My random sampling technique should help to compensate for these possible differences.

With this list of blogs, I used the program Outwit Hub Pro[7], a web scraping software, to collect data from the blogs on a daily basis .[8] I configured HTML scrapers to select as many possible pieces of data as possible including, date of post, time of post, post title, author, and post text or abstract. Not all data was available for all blogs. At a minimum, date of post, post title, and post text or abstract was scraped for each blog. This data was outputted to separate comma separated values (.csv) files for each blog, each day. The goal of these scrapes was to represent a typical "front page" of a blog, akin to that of a newspaper for the best possible comparison of traditional media data relying on front-page coverage in newspapers. The way I configured my Outwit Hub scrapers called for only scraping the first page of the blog as if a user went to that blog's homepage since it would represent the most they could see in a single visit. To make the data manageable, I set a maximum of fifteen posts to be scraped each day. In some cases, a blog may have only been displaying the six or ten most recent posts. In the case where there were fewer than fifteen posts on the homepage, all posts were scraped. According to Karpf (2012b), the front page of a blog can be "the most-trafficked real estate in the political blogosphere" (64). This reinforces my decision to focus on the front page of blogs especially when considering them as mass media.

[7] http://www.outwit.com/

[8] Some days were missed for various reasons, principally because I did not have computer access or could not have my computer turned on and/or connected to the Internet during the daily scheduled scrape.

This data was put into uniform format in Microsoft Excel and coded using the Policy Agendas coding scheme as adapted by Boydstun (2013) for her study of the *Times'* front-page coverage. For the purposes of this study, I only used the two-digit coding scheme, not the more detailed four or six digit codes possible using Boydstun's codebook. The two-digit scheme was used when analyzing all datasets even if a more specific code had been assigned and was available. The full twenty-seven code scheme was used which includes non-policy topics such as sports and arts and entertainment. See Appendix 3.2 for a full list of these two-digit topic codes.

For the data on Twitter, I similarly started with a larger list of influential Twitter accounts. I relied on Daniel Romero et al.'s (2011) list of influential news Twitter accounts. Romero et al. use a complex algorithm to calculate and rank influential users on Twitter. Their methodology goes beyond followers and number of Tweets and utilizes further data such as retweets and passivity on the network. It seeks to truly capture the amount of forward influence an individual user has. I started with a list of one hundred influential news Twitter accounts. Romero et al. justify their approach, writing, "for information to propagate in a network, individuals need to forward it to the other members, thus having to actively engage rather than passively read it and rarely act on it" (15-16). Given my view of Twitter as a mass medium, this goal closely parallels my agenda. According to Twitter (2011), 40% of users rarely post from their accounts, and rather lurk on the network, not interacting with other users. This fact makes Romero et al.'s approach even more appropriate. To see the full list of Twitter accounts, see Appendix 3.3. As with the blogs, in Stata, I sampled without replacement for a set of thirty influential news Twitter accounts.

With this list of thirty accounts, I wrote a script in twitteR, an R package, which was designed to scrape the twenty most-recent Tweets from each account. Again, this decision was made in order to best emulate what a Twitter user's "front page" would look like. If another user was to visit the timeline of any of these users' accounts, they could readily see the twenty most recently posted Tweets. I also chose a number larger than the daily maximum on blogs due to the comparative ease of posting a Tweet over a blog post. The script exported to a .csv file the content of each Tweet, the date and time of post, and account from which it was sent.

The same formatting and coding technique was applied as in the case of blog posts. All data was again coded using the Policy Agendas two-digit coding scheme.

Once all data was coded, Excel spreadsheets were converted to Stata dataset format using StatTransfer. In Stata, I appended all daily, coded datasets into one large dataset for each blog that spans the entirety of "front-page" coverage of that blog or Twitter account during the collection period. Data analysis was conducted on those source-specific datasets. Further, I appended all of the blog datasets to one another and all of the Twitter datasets to one another to form a dataset representative of the blogosphere and Twitter network, or Twitterverse, respectively. Further analysis was performed on those combined datasets to capture the networked nature of the blogosphere and Twitterverse.

One important decision made that applies to both blog and Twitter posts should be mentioned here. In the event that a blog or Twitter user posts relatively infrequently, and posts show up in scrapes over consecutive days, that data was not eliminated from the dataset. In that case, a post may be present two, three, four, and so on times in the

dataset. This decision was based on the idea that if a user were to visit that blog or Twitter timeline day after day, they would continually be exposed to that information. Attention and space is continually granted to that issue or topic until it is displaced by newer content. In a way, this is like an enhanced status quo effect. That is an important characteristic of my dataset to note.

Appendix 3.1: Full List of Influential Political Blogs

Ace Of Spades HQ
Althouse
AMERICAblog Gay
AMERICAblog News
American Power
American Spectator
American Thinker
Andrew Sullivan
Ann Althouse
Atlas Shrugs
Atrios
Balkinization
Balloon Juice
Ballot Access News
Betsy's Page
Big Government
Bleeding Heart Libertarians
BLT Blog of Legal Times
Bookworm Room
Business Insider
BuzzFead
Campaign for America's Future
Cato @ Liberty
Challah Hu Akbar
CiF Watch
CNA Daily News
CNA Daily News-US
CNN Political Ticker
ConservativeHome's Platform
County Fair
Creeping Sharia
Crooked Timber
Crooks and Liars
Daily Kos
Daily Pundit
Danger Room
Daniel Drezner
Dean Esmay
Democratic Underground
Doug Ross @ Journal
Doug Wead The Blog
DownWithTyrrany!
EconLog
Economist's View
Elder of Ziyon
Empire Burlesque
Eschaton
Fire Dog Lake
FiveThirtyEight
Foolocracy
FP Passport
Gateway Pundit
GetReligion
Glenn Greenwald
Global Voices Online
GrEaT sAtAn"S gIrLfRiEnD
Hit & Run
Hot Air
Hotline On Call
Huffington Post
Hullabaloo
Informed Comment
Instapundit
J. Bradford DeLong's Grasping
Jawa Report
Jezebel
Jihad Watch
Joe. My. God.
John Redwood
Jonathan Turley
JOSHUAPUNDIT
Juan Cole
LA NOW
LabourList
Lawyers, Guns, and Money
Legal Insurrection
Little Green Footballs
Lynn Sweet
Marathon Pundit
MattYGlesias
Media Matters for America
Mediaite

Memeorandum
Metro Weekly
Michelle Malkin
Moneybox
Mother Talkers
My DD
naked capitalism
NationalJournal Hotline On Call
New Civil Rights Movement
Newsbusters
NewsOne
Nice Deb
No More Mister Nice Blog
NYT The Caucus
OpenMarket.org
OpenSecrets Blog
Our Future
Outside The Beltway
Pandagon
Pat Dollard
Patterico's Pontifications
PinkNews.co.uk
Pirate's Cove
Policy Beta Blog
PoliPundit
Political Commentator
PoliticalWire
PoliticMo
Politics, Power, and Preventative Action
Powerline Blog
Pressure Points
Red State
Rhymes with Right
Riehl World View
Right Wing News
Right Wing Watch
Rising Hegemon
Say Anything
Scared Monkeys
SCOTUSblog
Shadow Government
Shark Tank
Simply Jews
Stephen M. Walt
Street Prophets
Sultan Knish
Taegan Goddard's Political Wire
Talk Left
Talking Points Memo
Taylor Marsh
Tbogg
Techdirt
The Agonist
The American Prospect Articles
The Baseline Scenario
The Blaze
The Cable
The Classic Liberal
The Colossus of Rhodey
The Diplomat
The Diplomat-China
The Foundry
The Incidental Economist
The Inquisitr
The Lid
The Lonely Conservative
The Long War Journal
The Mental Recession
The Moderate Voice
The New Civil Rights Movement
The Political and Financial Markets Commentator
the sad red earth
The Shark Tank
The Volokh Conspiracy
The YES! Weekly Blog
thetorydiary
Think Progress
Threat Level
Tom Tomorrow
Towleroad News
Townhall
TPMMuckraker
Truth on the Market
TruthDig
TruthHugger

Uppity Wisconsin
Via Meadia
Virginia Right
Volokh Conspiracy
Washington Monthly
Western Journalism
ZeroHedge
White House Dossier
White House.gov Blog
Winds of Change
Wizbang Blog
Wonkette
YID With LID

Appendix 3.2: Two-digit Policy Agendas Topic Codes

Code	Topic
1	Macroeconomics
2	Civil Rights, Minority Issues, and Civil Liberties
3	Health
4	Agriculture
5	Labor, Employment, and Immigration
6	Education
7	Environment
8	Energy
10	Transportation
12	Law, Crime, and Family Issues
13	Social Welfare
14	Community Development and Housing Issues
15	Banking, Finance, and Domestic Commerce
16	Defense
17	Space, Science, Technology and Communications
18	Foreign Trade
19	International Affairs and Foreign Aid
20	Government Operations
21	Public Lands and Water Management
24	State and Local Government Administration
26	Weather and Natural Disasters
27	Fires
28	Arts and Entertainment
29	Sports and Recreation
30	Death Notices
31	Churches and Religion
99	Other, Miscellaneous and Human Interest

Appendix 3.3: Full List of Influential News Accounts on Twitter from Romero et al. (2011)

@mashable
@cnnbrk
@big_picture
@theonion
@time
@breakingnews
@bbcbreaking
@espn
@harvardbiz
@gizmodo
@techcrunch
@wired
@wsj
@smashingmag
@pitchforkmedia
@rollingstone
@whitehouse
@cnn
@tweetmeme
@peoplemag
@natgeosociety
@nytimes
@lifehacker
@foxnews
@waitwait
@newsweek
@huffingtonpost
@newscientist
@mental_floss
@theeconomist
@emarketer
@engadget
@cracked
@slate
@bbcclick
@fastcompany
@reuters
@incmagazine
@eonline
@rww
@gdgt
@instyle
@mckquarterly
@enews
@nprnews
@usatoday
@mtv
@freakonomics
@boingboing
@billboarddotcom
@empiremagazine
@todayshow
@good
@gawker
@msnbc_breaking
@cbsnews
@guardiantech
@usweekly
@life
@sciam
@pastemagazine
@drudge_report
@parisreview
@latimes
@telegraphnews
@abc7
@arstechnica
@cnnmoney
@nprpolitics
@nytimesphoto
@nybooks
@nielsenwire
@io9
@sciencechannel
@usabreakingnews
@vanityfairmag
@cw_network
@bbcworld
@abc
@themoment
@socialmedia2day
@slashdot
@washingtonpost
@tpmmedia
@msnbc
@wnycradiolab
@cnnlive
@davos
@planetmoney
@cnetnews
@politico
@tvnewser
@guardiannews
@yahoonews
@seedmag
@tvguide
@travlandleisure
@newyorkpost
@discovermag
@sciencenewsorg

Chapter 4: Description of Datasets

In this chapter, I will provide a concise qualitative description of the various media making up the datasets I use in my analysis. These include datasets on both the traditional and new media. This qualitative assessment will form a base for later discussions about my findings.

The blog and Twitter datasets form the basis of my new media analysis. Blog data (in the form of blog posts) was collected between May 19, 2012 and August 14, 2012 from a total of twenty-nine different blogs.[9] Twitter data (in the form of Tweets) was collected from June 12, 2012 to August 16, 2012 from a total of twenty-eight Twitter accounts.[10] A total of 15,856 blog posts are included and coded in the set and a total of 18,903 Tweets are included and coded in the set.

Different blogs and different Twitter accounts display different characteristics. Though these characteristics may seem subtle, they can offer important clues about the differences in coverage. In this section, I will explain some of the pertinent characteristics of the blogs and Twitter accounts that comprise those respective datasets and seek to put the characteristics of these datasets into perspective in the larger blogosphere and Twitterverse to analyze the representativeness and validity of my dataset.

In my blog dataset, there are sixteen conservative leaning blogs, ten liberal or progressive leaning blogs, and three moderate or centric blogs. A blogroll is a list of links

[9] The original blog dataset was to be comprised of thirty blogs. One was eliminated from analysis because of technical difficulties in scraping its posts using Outwit Hub Pro. It is The Political, Financial, and Markets Commentator.

[10] The original Twitter dataset was to be comprised of thirty Twitter accounts. Two were eliminated from analysis because they no longer regularly post or have a different owner than they did when deemed influential by Romero et al. (2011). These are @seedmag (Seed Magazine) and @themoment (The Moment).

to other blogs and websites curated by the author of a blog. This blogroll is particularly important when thinking about the networked nature of the blogosphere. In my dataset, all but seven of the blogs had a blogroll, emphasizing not only the importance, but also the frequent presence of blogrolls on blogs. Conservatives tend to make greater use of blogrolls and linking behavior (Karpf 2008, 41).

Ten of the twenty-nine blogs had only one author, with the other nineteen having multiple authors. Some of the single author blogs occasionally feature guest posters or other authors. Seven of the twenty-nine blogs are issue-based, meaning they focus on a single, relatively narrow issue such as the current wars in the Middle East or the Israeli-Palestinian conflict. The other twenty-two are general interest political blogs covering a variety of topics much like a traditional media outlet such as a newspaper. Four of the twenty-nine blogs are affiliated with traditional media outlets including *Newsweek* magazine, *Foreign Policy* magazine, and *The New York Times.* See Table 4.1 for characteristics of all blogs in the sample dataset.

(Insert Table 4.1 about here)

On average, each Twitter account had posted 24,198 tweets, was following 5,640 other Twitter accounts, and was followed by 1,239,771 other users.[11] The Daily Telegraph's account (@telegraphnews) had Tweeted more than any other account with 74,794 Tweets and the Boston Globe's photography blog's account (@big_picture) had tweeted less than any other account with only 926 Tweets. CNN (@CNN) had more followers than other account with 5,824,718 users following it and io9 (@io9) had fewer followers than any other account with 65,108 users. NPR's account (@nprnews) followed

[11] These averages are calculated using data gathered on September 3rd, 2012

more users than any of the other accounts, following 76,306 other users and io9 followed fewer users than other account, following only ten other users.

Sixteen of the Twitter accounts in the dataset are affiliated with a traditional media outlet including magazines such as *Rolling Stone,* television stations such as *ESPN*, and newspapers such as the *New York Post.* The other twelve are either independent accounts, such as Social Media Today (@socialmedia2day) or affiliated with new, or Internet-centric, media outlets such as Yahoo! News (@yahoonews). See Table 4.2 for a full presentation of the characteristics of all Twitter accounts in the sample dataset including counts of Tweets, Following, Followers, and Romero et al.'s (2011) influence rank (see Chapter 3 for an explanation of the methodology behind this rank). The rank is out of all accounts on the Twitter platform at the time of calculation.

(Insert Table 4.2 about here)

It is not possible, nor particularly relevant to place this data into perspective with all Twitter users given that few users comprise the majority of the traffic (Twitter 2011). Rather, I will put them into the perspective of other news Twitter accounts quantitatively based on Romero et al.'s (2011) list and by examining some of the relevant literature on journalism and Twitter. There is no significant correlation observed between number of followers, following, Tweets, or Romero et al.'s influence rank.

Using Stata, I ran an unpaired t-test with a 95% confidence interval and the difference between the means of the full set (100 accounts) and my sample (28 accounts), fall well within the 95% confidence interval. Additionally, see the scatter plots in Figure 4.1 for a comparison of the distributions between the full list and the sample characteristics. Between the sample (on the left) and the full set (on the right), there is a

resemblance in the shape of the distributions. Therefore, I can say with 95% certainty that my sample is representative of the larger, news environment on Twitter. In the last figure in this section, you can also see that for most of the distribution, the number of accounts followed by each account in the full set resembles a power law, except at the extremes of the distribution. Other characteristics including number following and number of Tweets do not resemble power laws.

(Insert Figure 4.1 about here)

On the other side of my analysis is the traditional media. I have obtained and analyzed data from a variety of American and European news sources. The principle dataset for comparison is Boydstun's (2013) *New York Times* front-page dataset.[12] I also will utilize international datasets of *El Pais* and *El Mundo,* Spanish newspapers part of a dataset created by Frank Baumgartner and Laura Chaqués[13], a dataset of *The Times of London,* a newspaper in the United Kingdom created by Shaun Bevan[14], a dataset of *Neue Zürcher Zeitung,* a newspaper in Switzerland created by Anke Tresch[15], and a dataset of Danish Radio News created by Christoffer Green-Pederson[16]. Codebooks are available for each of these datasets from their respective country agendas projects and the researchers.

I will rely heavily on Boydstun's front-page dataset of the *Times* in my cross-media analysis. For that reason, I will provide a more detailed description of that dataset based on Boydstun's forthcoming book, *Politics, the Media, and Agenda-Setting: How*

[12] As previously explained, made available directly from Boydstun.
[13] http://www.ub.edu/spanishpolicyagendas/datasetinstruments/
[14] http://www.policyagendas.org.uk/
[15] Not available on web; made available directly from Tresch.
[16] http://www.agendasetting.dk/start/page.asp?page=4

Policy Issues Make the News (2012). The dataset includes every front-page story in *The New York Times* Between January 1st, 1996 and December 31st, 2006. It is comprised of 31,034 stories, all of which were coded by Boydstun and her research team.

Boydstun (2013), describes some of the major events that led to increased media attention during this period including the terrorist attacks of September 11, 2001, the beginning of the Iraq and Afghanistan wars, the wars in Kosovo, and the Terry Schiavo right to die case. The dataset spans two presidencies, multiple international conflicts, and varying domestic policies, making it representative of a wide variety of policy and non-policy issues. See Chapter 4 of Boydstun's forthcoming book for a more complete description of the dataset.

As mentioned in Chapter 3, I will also make use of *The New York Times* index developed by Baumgartner and Jones as part of the Policy Agendas Project.[17] The coded index is based on a sample of stories from the entire *Times.* I use it to compare coverage on the front page to the newspaper overall. It contains 49,126 stories between January 1, 1946 and December 31, 2008. Over that time, it obviously contains a whole breadth of stories from a significantly long period of American history.

The Spanish newspaper dataset includes all front-page stories from *El Mundo* and *El Pais* from January 1996 to December 2009. There are 44,858 stories from *El Mundo* and 50,770 stories from *El Pais.* The Danish radio news sets includes all the stories mentioned in radio news from the 12:00 pm and 6:30 pm newscasts from January 1984 to December 2003. There are a total of 191,564 stories in the dataset. *The Times of London,* a newspaper in the United Kingdom, has a total of 21,844 stories in its data set and spans

[17] http://www.policyagendas.org/page/datasets-codebooks

from January 1960 to December 2008. The last international dataset used for comparison is *Neue Zürcher Zeitung*, a Swiss newspaper. There are a total of 8,558 stories in the dataset spanning from January 1996 to December 2003. See Table 4.3 for consolidated statistics on both domestic and international traditional media sources.

(Insert Table 4.3 about here)

Table 4.1: Blog Characteristics

Blog	URL	Technorati Politics Authority Index (as of May 10-13, 2012)	Blog Authority Index Ranking (if available; as of May 2012)	Political Stance (Progressive, Moderate, Conservative)	Authors (Single/Multiple)	Blogroll? (Y/N)	Affiliated with Traditional Media Source? (Y/N, if Y, which?)	Issue-based or general interest	Karpf Quadrant[18]
Red State	http://www.redstate.com	798	6	Conservative	Multiple	N	N	General Interest	I
Patterico's Pontifications	http://patterico.com	663	13	Conservative	Multiple	Y	N	General Interest	II
Sultan Knish	http://sultanknish.blogspot.com	611		Conservative	Single	Y	N	Issue-based	II
The Mental Recession	http://mentalrecession.blogspot.com	650		Conservative	Single	Y	N	General Interest	II
The Long War Journal	http://www.longwarjournal.org	692		Moderate	Multiple	N	N	Issue-based	III
Daily Kos	http://dailykos.com	889	1	Progressive	Multiple	Y	N	General Interest	I
Informed Comment	http://www.juancole.com	711	8	Progressive	Single	Y	N	General Interest	II
Digby/Hullabaloo	http://digbysblog.blogspot.com	733	11	Progressive	Multiple	Y	N	General Interest	I
Talking Points Memo/TPM Muckraker	http://tpmmuckraker.talkingpointsmemo.com	681	2	Progressive	Multiple	N	N	General Interest	IV
Daniel Drezner	http://drezner.foreignpolicy.com	589		Conservative	Single	Y	Y, *Foreign Policy*	General Interest	III

[18] From Karpf (2012b), pp. 73. This quadrant system categorizes blogs based on closed vs. open authorship mobility on the x-axis, with blogs in Quadrants I and IV being more open than those in Quadrants II and III and the reputation on the y-axis with organizational blogs lower on the y-axis and personal blogs higher on the y-axis. Some blogs in my sample were not categorized by Karpf. I categorized those that were not categorized by Karpf using his criteria.

Virginia Right	http://www.varight.com	678		Conservative	Multiple	Y	N	General Interest	III
New Civil Rights Movement	http://thenewcivilrightsmovement.com	723		Progressive	Multiple	Y	N	General Interest	I
American Thinker	http://americanthinker.com	726	5	Conservative	Multiple	N	N	General Interest	III
Hot Air	http://hotair.com	751	1	Conservative	Multiple	Y	N	General Interest	III/IV
Yid With the Lid	http://yidwithlid.blogspot.com/	722		Conservative	Single	Y	N	Issue-based	II
Newsbusters	http://newsbusters.org/	750	7	Conservative	Multiple	Y	N	General Interest	IV
Elder of Ziyon	http://elderofziyon.blogspot.com/	680		Conservative	Single	Y	N	Issue-based	II
Blog of Legal Times	http://legaltimes.typepad.com/blt/	606		Moderate	Multiple	Y	N	General Interest	III
Lawyers, Guns, and Money	http://www.lawyersgunsandmoneyblog.com/	134	23	Progressive	Multiple	N	N	General Interest	III
TruthDig	http://www.truthdig.com/	555		Progressive	Multiple	Y	N	General Interest	III
Uppity Wisconsin	http://uppitywis.org/	594		Progressive	Multiple	N	N	Issue-based	III
Atlas Shrugs	http://atlasshrugs2000.typepad.com/	670		Conservative	Single	Y	N	General Interest	II
Michelle Malkin	http://michellemalkin.com/	771		Conservative	Multiple	Y	N	General Interest	II
The Cable	http://thecable.foreignpolicy.com	788		Moderate	Multiple	N	Y, *Foreign Policy*	General Interest	III
Ann Althouse	http://althouse.blogspot.com/	716	10	Conservative	Single	Y	N	General Interest	II
The Political and Financial Markets Commentator*	http://politicsandfinance.blogspot.com/	638		Conservative	Single	Y	N	General Interest	III

The Tory Diary	http://conservativehome.blogs.com/thetorydiary	639		Conservative	Multiple	Y	N	Issue-based	III
FiveThirtyEight	http://fivethirtyeight.blogs.nytimes.com			Progressive	Multiple	N	Y, *The New York Times*	Issue-based	III
The Lonely Conservative	http://lonelyconservative.com	714		Conservative	Single	Y	N	General Interest	II
Andrew Sullivan	http://andrewsullivan.thedailybeast.com/	140		Progressive	Single	Y	Y, *Newsweek/The Daily Beast*	General Interest	II

*Not included in further analysis due to technical difficulties in scraping a sufficient number of posts.

Table 4.2: Twitter Characteristics

@name	Name	Tweets*	Following*	Followers*	Romero et al. Influence Rank	Affiliated with traditional media outlet? (Y/N, if Y, which?)
@socialmedia2day	Social Media Today	20,919	420	125,430	3510	N
@nytimesphoto	NYT Lens	3,148	258	264,983	2927	Y, *The New York Times*
@seedmag**	Seed Magazine	543	2,178	24,555	4696	Y, *Seed Magazine*
@mental_floss	Mental Floss	7,366	7,293	227,331	874	N
@breakingnews	Breaking News	71,759	600	4,570,969	147	N
@newyorkpost	New York Post	22,133	42,630	314,319	4790	N
@big_picture	The Big Picture	926	183	92,843	92	Y, *The Boston Globe*
@usweekly	Us Weekly	15,295	1,027	787,423	2233	Y, *US Weekly*
@newscientist	New Scientist	13,201	3,252	636,879	852	Y, *New Scientist*
@life	Life.com	6,592	215	1,520,794	2277	Y, *Life Magazine*
@wired	Wired	14,828	295	1,603,606	322	Y, *Wired*
@instyle	InStyle	23,718	2,456	2,235,895	1330	Y, *InStyle*
@todayshow	The Today Show	15,618	7,404	1,321,054	1927	Y, *NBC's The Today Show*

@rollingstone	Rolling Stone	14,761	305	1,686,771	436	Y, *Rolling Stone*
@politico	POLITICO	30,479	284	380,183	4048	N
@telegraphnews	Daily Telegraph News	74,794	381	130,035	2629	Y, *The Daily Telegraph*
@slashdot	Slashdot	38,037	68	89,257	3527	N
@cnn	CNN	27,291	689	5,824,718	473	N
@nprnews	NPR News	44,358	76,306	1,182,788	1572	Y, *NPR*
@tvguide	TV Guide	26,168	4,366	743,964	4757	Y, *TV Guide*
@themoment**	The Moment	137	8	201	3413	N
@gizmodo	Gizmodo	12,775	69	436,391	237	N
@yahoonews	Yahoo! News	40,358	775	346,047	4668	N
@latimes	Los Angeles Times	42,647	15,743	352,455	2625	Y, *Los Angeles*
@cnnmoney	CNNMoney.com	36,132	829	423,662	2777	Y, *CNN*
@abc	ABCNews.com	51,555	615	1,877,771	3411	Y, *ABC*
@whitehouse	The White House	7,010	168	3,065,004	448	N
@io9	io9	14,027	10	65,108	3023	N
@espn	ESPN	42,200	362	5,142,721	187	Y, *ESPN*
@davos	World Economic Forum	3,890	18	1,719,972	3891	N

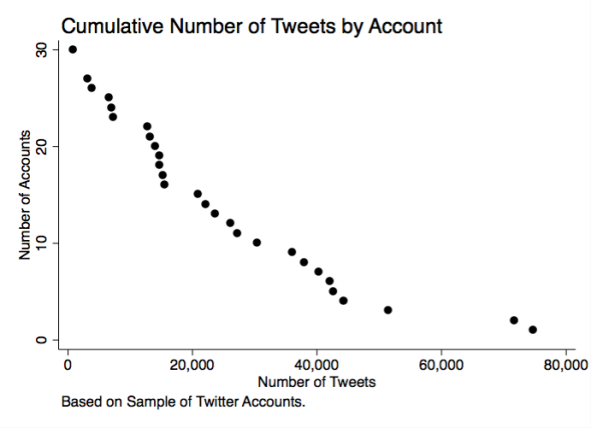
*Data updated on September 3, 2012.
**Not updating/have changed owner or behavior since being included in initial sample from the Romero et al. list. Therefore, they are not included in further analysis.

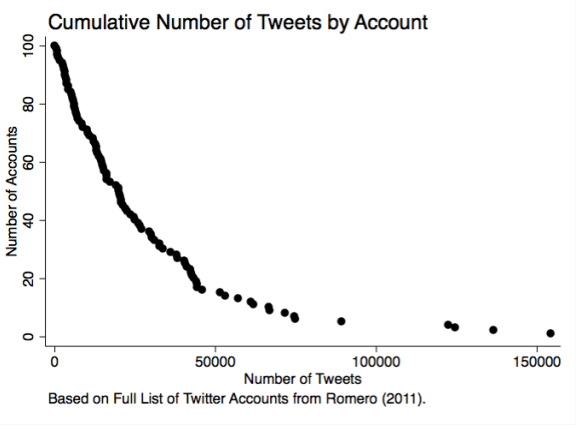
Table 4.3: Summary Characteristics for Traditional Media Datasets

Name	Country	Date Range	Number of Stories
The New York Times (Front page)	United States	Jan. 1996-Dec. 2006	31,034
The New York Times (Index)	United States	Jan. 1946-Dec. 2008	49,126
El Pais	Spain	Jan. 1996-Dec. 2009	50,770
El Mundo	Spain	Jan. 1996-Dec. 2009	44,858
Danish radio news	Denmark	Jan. 1984-Dec. 2003	191,564
The Times of London	United Kingdom	Jan. 1960-Dec. 2008	21,844
Neue Zürcher Zeitung	Switzerland	Jan. 1996-Dec. 2003	8,558

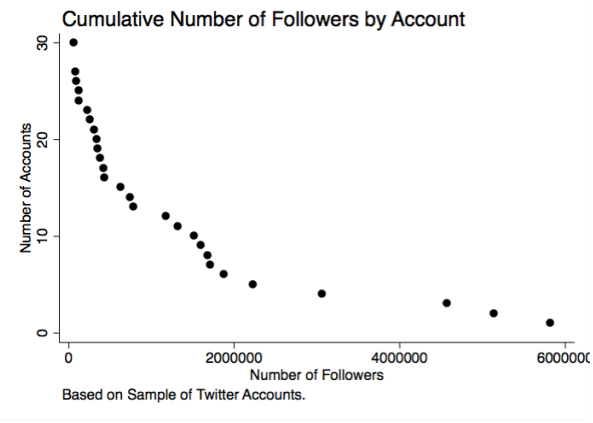
Figure 4.1: Twitter Characteristic Scatter Plots

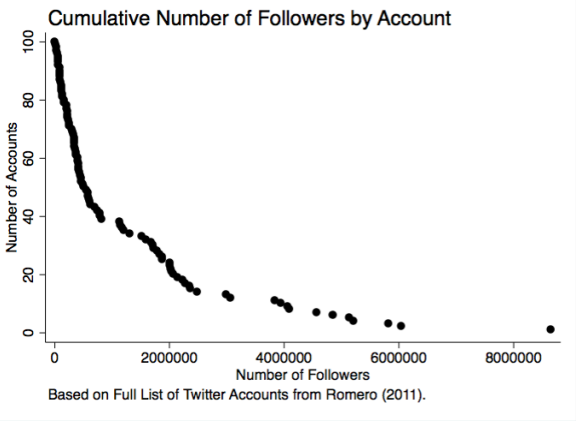
Number of Tweets



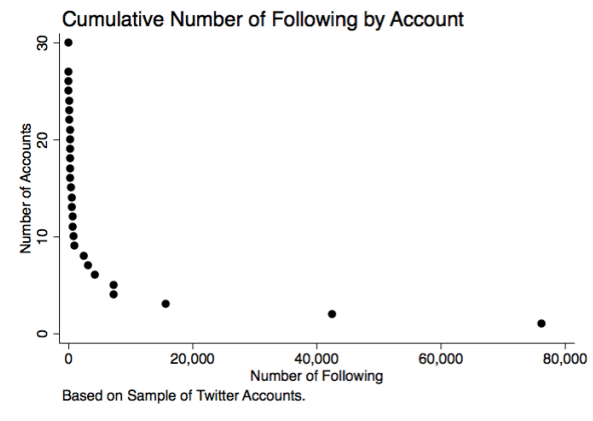


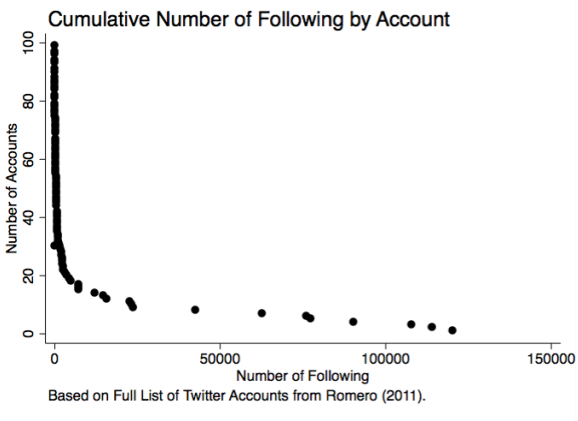
Number of Followers



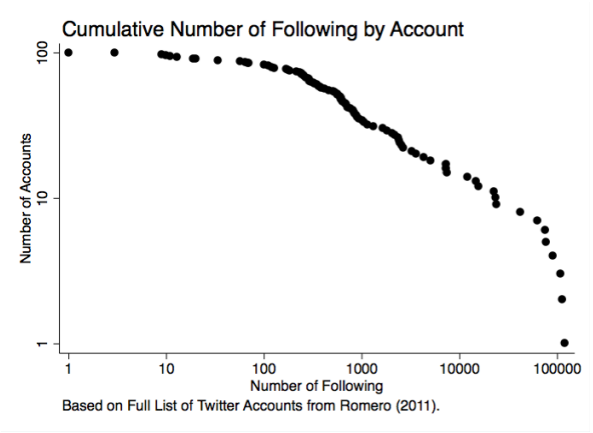


Number of Following





Number of Following Resembles a Power Law



Chapter 5: The Spread of Attention

As defined, there is a finite amount of space on the media agenda—only so much can make it onto the front page or into the news. The decisions as to what does make it onto the front page are complex. This distribution of attention, or how much space one story or topic is allowed to occupy, is important.

Major Issues in the News

In this chapter, I will first undertake a qualitative review of some of the major issues that occupied significant attention in the blogosphere and Twitterverse during the data collection period, May to August 2012. These are generally topics that stuck out to me, the coder. To begin, one overwhelming topic was the 2012 presidential election between President Barack Obama and former Massachusetts Governor Mitt Romney. This occupied significant attention, particularly on certain blogs such as the Daily Kos. Another issue that occupied significant space in this agenda at the beginning of the collection period was the John Edwards' corruption and campaign finance trial. Along with these two large topics, a lot of attention remained dedicated to other presidential and federal government actions. Notably, both of these topics were coded the same (Topic 20, Federal Government Administration, which includes elections).

There were also several big crime and law enforcement stories. The shooting of Trayvon Martin by George Zimmerman received considerable attention particularly on left-leaning blogs and those that concern themselves with minority issues and civil rights. As Zimmerman was arrested, left, and returned to jail multiple times, and new accusations and facts surfaced, coverage surged. The Jerry Sandusky sex abuse trial out of State College, Pennsylvania also received substantial attention particularly in the days

leading up to the end of his trial and the jury's decision. Because of the significant public interest in this case, coverage of the NCAA sanctions on Pennsylvania State University also received attention. This sports angle is probably not something that ordinarily makes it onto the top of a political blog, but public interest appears to have won out. Coverage was substantial and sustained.

The Aurora movie theater shootings in July by James Holmes also occupied significant space. This serves as an illustration of the difference between traditional and new media. As the shooting happened after 2 a.m. Eastern Standard Time, most of the major national newspapers had already sent the next day's print edition to press. Bloggers and Twitter users were able to pick up this issue immediately and report on it before most people on the East Coast of the United States were awake. The newspapers had to wait until the next day to publish print stories on the tragedy. These crime stories in particular appear to transcend most of the traditional issue-based boundaries found in the blogosphere. Even in the blogs and Twitter accounts that typically dedicate themselves to a specific issue and definitely do not ordinarily cover crime gave attention to these crime stories, especially the Aurora shooting. The scale of casualties is probably responsible for that change in attention.

On the foreign policy front, the ongoing conflict and situation in Syria received a lot of attention, particularly in the early part of the summer. However, as the summer went on, coverage of the conflict in Syria seemed to decrease, but seemingly not in response to any particularly event. The conflict is certainly ongoing. Public interest in the United States may have waned on the issue and attention decreased. The ongoing war in Afghanistan also received noticeable attention.

The 2012 London Olympics also occurred during this period in late July and early August. Across blogs and Twitter accounts, and not just accounts like @ESPN where you would expect to see a lot of coverage on the Olympics, attention was given to the Olympics. Sports became a topic discussed in more than just sports focused sources and outlets.

Two surges in science and space coverage occurred surrounding the successful launch and return of the commercial SpaceX Dragon capsule to and from the International Space Station at the end of May and the successful arrival of NASA's Curiosity Rover on Mars in August and consequent transmission of pictures from the Red Planet. While some outlets like the magazine *New Scientist's* Twitter account frequently give attention to the topic of space exploration, most outlets do not. However, in response to events like these they do.

Boydstun (2013) describes the contents of her dataset in qualitative terms as well, discussing some of the major stories in the eleven years included in her dataset. Some major stories include the Oklahoma City federal building bombing, major sporting events, the wars in the Middle East, and elections (120). Other stories include the rolling California blackouts in 2001, the Enron scandal in 2002, and the Catholic priest abuse scandal that broke in 2002 (128). Seasonal, but recurring, events include the Olympic games and presidential elections (135-136). Some events are enduring, including sports and weather, and come up on the *Times'* front page on a regular basis (134). Ultimately, in an eleven-year period, a lot of big news happens. These represent some of the highlighted events from this dataset. Altogether, her dataset represents the history of an era. She also takes her analysis a step-further, looking at the diversity of perspectives

within coverage of issues, or how issues are framed differently. My analysis will not extend that far.

Changes in attention as a result of specific events can be explained by the idea of punctuated equilibrium, an idea conceptualized by Baumgartner and Jones ([1993] 2009). At its most basic, this is the idea that equilibrium in agendas is disrupted, or punctuated, by specific events that cause attention levels to change. As applied to the current topic at-hand, "The fitful nature of media coverage of public policies is linked to the fitful concerns of governmental institutions of decision making. As an issue surges onto the media agenda, so does it lurch onto the agendas of federal and state agencies that had previously not been concerned with it" (Baumgartner and Jones [1993] 2009, 125). This concept will also be relevant in the next chapter when I analyze how coverage changes over time. Other studies of media attention also focus on this idea (Baumgartner and Chaqués 2012, Boydstun, Hardy, and Walgrave N.d., Wolfe, Boydstun, and Baumgartner 2009, Boydstun 2013, and McCombs 2004). All of these authors argue that media coverage and the media agenda is highly linked to specific events and incidents that cause changes in this coverage. Thus, specific events, particularly recurring ones, can explain patterns of coverage.

Analyzing the Spread of Attention

Having seen some of the "big" stories, I now turn to a statistical analysis of this data from a bird's eye view to get an overall idea of the levels of attention distributed to different topics. As I examine how much progress has been made toward achieving the vision of the Internet utopia, this is an aggregated measure that allows for a standardized comparison between media sources.

As I discussed in Chapter 2, attention diversity is important in the media in order to provide a wide variety of information to citizens, who ultimately are making important political decisions based on the information they consume in the media. In order to analyze my data in this manner, I turn to the concept of entropy. *Entropy* is a measure of disorder in a system that has its conceptual origins in chemical and physical thermodynamics. Entropy is a measure used to study disorder within political and social systems. Claude Shannon (1948) first applied entropy to communication. According to Coleman (1975), "The entropy is a measure of how much uncertainty we have about a random individual's expected choice, or equivalently, of how the group will apportion its choices among the alternatives" (33). Coleman continues, stating, "entropy might be thought of as a measure of heterogeneity, nonconformity, or lack of consensus in a group of people. The greater the heterogeneity or nonconformity in the group with respect to a set of possible actions, the greater will be the uncertainty about any one person's behavior, and thus the greater the entropy" (34).

This concept is highly applicable to my topic. I isolate each media source as a "system." The choices in this case are defined—which of the policy topics describes each story. That is, the author of a story or an editor in charge can choose which topic to write a story about. If all media outlets make similar choices, this is a highly homogenous system. If the distribution of coverage is markedly different, the opposite is true—the system is very heterogeneous.

There are several measures of disorder in a system. Three of the most common are the Herfhendal Index (HHI), the normalized version of the Herfhendal Index (N_HHI), and Shannon's H, in many circles the classical measure of entropy. Boydstun,

Bevan, and Thomas (N.d.) discuss measuring attention diversity. They argue that Shannon's H is well suited for measuring attention diversity based on past works and that it is more accurate than the Herfhendal Index at the extremes of the range of measurement. Shannon's H as a measure for entropy is on a scale of zero to one. They say that "Shannon's H directly accounts for the number of issues at play; as the number of issues increases, its maximum value also increases via the ln(N), where N is the number of issues" (Boydstun, Bevan, and Thomas N.d., 15). The mathematical formula for Shannon's H is:

Formula 1: Shannon's H Information Entropy

$$\textit{Shannon's } H = -\sum_{i=1}^{n} p(x_i) * \ln p(x_i)$$

where:

x_i represents an issue
$p(x_i)$ is the proportion of total attention the issue receives
$\ln(x_i)$ is the natural log of the proportion of attention the dimension receives[19]

These authors conclude that Shannon's H Information Entropy is the best possible measure of diversity. They argue that it is the most consistent and accurate measure at all levels of entropy and is superior to other indexes such as the Herfhendal Index (Boydstun, Bevan, and Thomas N.d., 29-30). According to Wolfe, Boydstun, and Baumgartner (2009), many studies of media and institutional agendas have also turned to entropy as their measure of choice for studying attention diversity. For these reasons, I have selected Shannon's H as my measure of entropy to analyze differences in levels of attention across the Policy Agendas Topics for this thesis.

[19] Formula from Boydstun, Bevan, Thomas N.d., 14-15

To confirm my selection of Shannon's H as my measure for this project, I also calculated the HHI and normalized HHI for all sources in question. Using Stata, I ran a correlation between three variables, HHI, N_HHI, and Shannon's H Entropy. All were highly correlated. HHI and N_HHI are correlated at a perfect (1.0) level. Shannon's H and HHI are negatively correlated at the -0.96 level and Shannon's H and normalized HHI are likewise negatively correlated at the -0.96 level. The reason for the negative correlation is that the scales for N_HHI and HHI are the inverse of Shannon's H, but still on a scale between zero and one (zero being the most heterogeneous system, one being the most homogenous system). From this analysis, it is clear that no matter what the selection of measurement, the high correlation between available measures indicates that all would tell a similar story about attention diversity in the media.

Statistical Results

I will now discuss, at an aggregated level, the measure of diversity, using Shannon's H, for the media sources included in my analysis. First, I will look at each blog and Twitter account individually. The mean entropy value for blogs was 0.59 and a median value of 0.66. The least diverse blog using this measure was *The Tory Diary* with an entropy of 0.05. This blog focused nearly expressly on British politics (coded under Topic 19-International Affairs), despite being classified by Technorati as one of the top 100 influential political blogs in the United States. The most diverse individual blog was *Lawyers, Guns, and Money* with an entropy value of 0.80. There were several others near that range, while no other blog approached the extreme lack of diversity observed on *The Tory Diary*. See Table 5.1 for a display of entropy values for all blogs in my dataset.

(Insert Table 5.1 about here)

On Twitter, the other side of my new media analysis, there are similar results. The average entropy for individual Twitter accounts is 0.55 and the median entropy is 0.59. The least diverse Twitter account included in my dataset is @tvguide, with an entropy of 0.09. This lack of diversity is explainable by the intense focus on arts and entertainment (Topic 28), which I discuss in greater detail below. The most diverse Twitter account as measured here is @nprnews, which has an entropy of 0.83. See Table 5.2 for a full display of entropy values for Twitter accounts included in my dataset.

(Insert Table 5.2 about here)

Although Shannon's H provides a highly precise measure of entropy, it can be difficult to comprehend the difference between different sources in terms of diversity on a purely mathematical level. The three pie graphs in Figures 5.1 and 5.2 each illustrate a blog and Twitter account, respectively, of "low", "moderate", and "high" entropy. The corresponding entropy value is included with each chart. The difference in overall coverage as distributed between sources is graphically evident.

(Insert Figures 5.1 and 5.2 about here)

Thus far, my analysis has been confined to the diversity of individual new media sources. The networked nature of the blogosphere and Twitterverse is important. Unlike newspapers, where an ordinary individual would only read one newspaper per day, most Twitter users are reading Tweets from multiple (if not tens or hundreds of) accounts each day (and often multiple times per day) and the linked nature of the blogosphere and features like blog rolls contribute to the idea that regular readers of blogs are often reading posts on multiple blogs. This is simply the nature of the new media.

Due to this characteristic of both new media types in my datasets, I calculated another important entropy value for each. As previously detailed, I used Stata to append all Twitter and blog datasets into one, large dataset for each with 15,856 blog posts and 18,903 Tweets. I call these my "combined" datasets for each type of new media. These values are also reflected in Tables 5.1 and 5.2, near the bottom of each table. Essentially, this is a calculation of the total entropy for the blogosphere or Twitterverse based on my samples. The combined entropy for the blogs is 0.77 and the combined entropy for Twitter is also 0.77. Therefore, as networks, the blogosphere and Twitter are similarly diverse. In Figures 5.3 and 5.4, this diversity in coverage is represented in pie graphs for each media source. Although the diversity appears similar, the way it is distributed is different and I will further discuss that later in this chapter.

(Insert Figures 5.3 and 5.4 about here)

As the point of this analysis is not merely to describe the new media in qualitative and quantitative terms, but also to compare these new media sources to traditional media sources and assess the implications of that, I have compared the diversity of my new media sources to the mainstay traditional media source in the United States, *The New York Times.* Using Boydstun's (2013) front-page dataset, I calculated an entropy value of 0.83. Graphically, this level of diversity is represented in the pie graph of coverage broken down by percent of coverage devoted to each topic in Figure 5.5. Therefore, the traditional media, at least as represented by the *Times,* is just slightly more diverse than new Internet media sources. This difference is not necessarily substantial. In actuality, the diversity of the traditional and new media, at least measured numerically, is similar.

(Insert Figure 5.5 about here)

A possible criticism of my comparison here is that I am comparing a three-month dataset on the new media to a ten-year dataset on the *Times.* This criticism is valid, and ultimately a result of the constraints of my thesis timeline. To mitigate this criticism, I ran separate entropy tests on all consecutive three-month (quarterly) periods in Boydstun's front-page dataset. Taking the average of all of these entropies, the result is an overall value of 0.79. This entropy value is even closer to the values calculated for the new media. Over time, the *Times* is slightly more diverse than the new media, but barely so within three-month periods. This further supports my argument that the diversity of the new and traditional media in the United States is not significantly different.

Boydstun (2013) and Lovett and Baumgartner (2012) conducted similar analyses that revealed that within the traditional media, there is largely a single media agenda within television news and newspapers in the United States. Using this data, I can conclude that overall, the new and traditional media display about the same level of attention diversity, at least statistically. The overall degree of attention is similar. That last point is important to note because there is a difference between this mathematical measure of diversity and the way that attention is actually distributed across different issues. I will further discuss where that finite amount of attention in each medium falls later in this chapter. I will discuss possible discrepancies by topic in the traditional and new media.

As a further check on my analysis, I also ran entropy tests on the Policy Agendas Project's *New York Times* index of all stories between 1946 and 2008 originally created by Baumgartner and Jones. Rather than coding every front-page story in the *Times* like Boydstun, Baumgartner and Jones coded the first story on every odd-numbered page of

the *Times* index to get an overall idea of the type of coverage displayed throughout the times. Although I did my best to replicate a "front page" in the blogs and on Twitter by retrieving the most recent updates each day, that is not a perfect method. That technique probably puts my datasets (by analogy) somewhere in between the front-page dataset and the index. The entropy value for the *Times* index is a bit higher than the front-page score, at 0.88. This demonstrates that fewer issues win the competition for the highly finite amount of space on the front page of the *Times* each day whereas a greater number of topics can be represented throughout the paper. However, this dataset spans a much greater period of time than does Boydstun's or mine. For the purposes of this analysis however, these are all "high" entropy scores and graphically do not appear much different. This source is also represented by a pie graph of percent of coverage of different topics in Figure 5.6. Coverage is distributed differently inside of the paper than on the front page. As seen in the charts, International Affairs is the most common topic on the front page, while Banking and Domestic Commerce is the most common topic overall as represented by the index.

(Insert Figure 5.6 about here)

In pursuit of making this analysis as accurate, relevant, and widely applicable as possible, I have also compared my data to several international traditional media sources. These sources from Spain, Denmark, Switzerland, and the United Kingdom have previously been described. Whereas Twitter and blogs, due to their being on the Internet are easily accessible around the world, the consumption of traditional media sources is largely confined to a single country.

El Pais, a Spanish newspaper, has an entropy of 0.86 and the other main Spanish newspaper, *El Mundo* has an entropy value of 0.82. The British newspaper, *The Times of London* has an entropy of 0.89. The Swiss newspaper *Neue Zürcher Zeitung* has an entropy of 0.81. My Danish traditional media source is a bit different, representing news radio rather than a newspaper but is still a popular traditional media source in Denmark. It has an entropy value of 0.74. The same time period arguments as outlined above presumably apply here. In sum, I have observed that the international traditional media are also not particularly more or less diverse than the traditional or new media in the United States. At the very least, it is clear through the comparison between all of these traditional media sources, both American and international, and the new media sources in my dataset, that their overall entropy values are very near each other. Attention is concentrated similarly. Consequently, I can conclude that the overall level of diversity of information available is roughly the same now as it has been in the last couple of decades. See Table 5.3 for a full display of entropy values for traditional media sources similar to the previous tables for the blogs and Twitter.

(Insert Table 5.3 about here)

Policy vs. Non-policy Coverage

The full Policy Agendas Topic codes cover all sorts of non-policy topics including religion, sports, and entertainment. However, in looking at the political implications of media coverage, it is also relevant to look at how coverage is distributed among policy-relevant topics only. These are covered by the "original" Policy Agendas Topic codes first used to code congressional activities. There are some differences in how

coverage is distributed measuring entropy by only analyzing the coverage distributed over policy-relevant topics.

To measure this, I used Stata to isolate only the policy-relevant topics (Topic Code 1 through Topic Code 24). Then, I calculated the total number of policy-relevant stories, blog posts, or Tweets. I used this value to calculate the overall percentage of coverage devoted to policy-relevant or "hard" news coverage. The results of this analysis are also in Tables 5.1, 5.2, and 5.3 for blogs, Twitter, and traditional media, respectively.

Overall, the traditional media exhibited higher levels of policy-relevant news coverage than the new media. On the *Times* front page, 88.68% of coverage was devoted to policy topics. In the blogosphere, this value was lower, with 82.78% of coverage being distributed across policy relevant topics. The starkest difference, however, is on Twitter. On Twitter, less than half of coverage was distributed to policy-relevant topic areas. Only 48.75% of coverage was policy-relevant. Figure 5.7 provides a graphical depiction of the differences in policy versus non-policy attention in these three types of media. This massive difference is possibly attributable to various reasons. I contend that the ease and zero-cost nature of posting on Twitter and the large amount of information available on the network promotes a considerable number of human-interest stories to be posted. Individuals taking the time to write extended blog posts appear to be more dedicated to substantive policy-relevant discussion. Where space is expensive and highly finite, like in a newspaper, very high levels of coverage are devoted to policy-relevant topics, as it is the information that the electorate most needs (but does not necessarily most desire). This is especially true on the front page. On Twitter and blogs, there is less of a difference in terms of cost, both monetary and spatial, that constrains the coverage in those areas. This

is revealed by the difference in policy-relevant coverage in the *Times* index versus the front-page dataset. In the index, only 81.27% of coverage is on policy-relevant topics. This is lower than the distribution in the blogs.

(Insert Figures 5.7 about here)

The international traditional media sources largely mirror this distribution in policy versus non-policy coverage. On average, traditional media outlets devote 87.13% of their coverage to policy-relevant topics. The international sources range from approximately 82% to 99% of coverage devoted to policy-relevant topics. Therefore, I conclude that the traditional media, especially on the front page, display high-levels of policy only topic coverage.

This difference between policy and non-policy coverage is important. In scholarship, it is often referred to as hard and soft news—hard news being policy relevant news and soft news being human-interest, or non-policy relevant news. There is growing evidence that the rise of soft news, especially to the extent we are seeing on the Internet (and is demonstrated by the results I observed on Twitter) is having a detrimental effect on democracy by decreasing the overall attention people are paying to news (Patterson 2000, 3). It is possible that so much soft-news in certain platforms is actually discouraging people from reading the news (Patterson 2000, 8) and thus decreasing the individual's interest in politics (Patterson 2000, 10). Patterson makes several conclusions in his study of the rise of soft news. He writes, "Soft news has a place in the news. Even the most ardent hard news consumers like the diversion that an amusing or compelling soft news story can provide. But soft news is a weak foundation for a news program or newspaper. To build the news around something other than public affairs is to build it on

sand" (Patterson 2000, 9). Following this logic, Twitter is a substantially weaker news platform than a newspaper or even the blogosphere, especially in terms of its political benefit.

Aside from the percentage of coverage spent on policy and non-policy relevant topics, I also calculated the entropy value across the coverage of policy-relevant topics only. In the *Times,* the entropy is actually lower across the policy-relevant topics than across all issues, though negligibly so. The entropy value is 0.83. The combined blog value follows a similar trend with a slightly lower entropy value with a score of 0.75. The same is true across the international sources as well. This trend changes on Twitter, though. The combined entropy on Twitter actually increases when looking only at policy-relevant topics. The combined entropy of Twitter is 0.80. This means that although a smaller percentage of coverage on Twitter is devoted to policy-relevant areas, among that coverage, a greater variety of policy topics are represented.

Different Distributions of Coverage

A particular phenomenon provides a caveat to the seeming implications of the prior statistics in some respects. Though the different sources do not appear to differ significantly in overall diversity as measured, there are differences in terms of how that diversity of attention is distributed. This is particularly relevant as we enter an era filled with soft news. As I articulated in Chapters 1 and 2, the media are an important tool to inform the public about pressing policy topics. However, it is also important to note that in many cases, the differences in attention distribution are negligible or not significant. In this section, I will discuss the way that coverage is distributed rather than overall statistics that describe the diversity of each type of media.

There are several topic areas in specific that show a great disparity in distribution of attention between Twitter, blogs, and the *Times.* I will examine each of those areas independently and offer an assessment as to the possible causes of the difference and the possible effects of that difference. Topic 2, Civil Rights, Minority Issues, and Civil Liberties shows a gap in attention, especially with respect to blogs. In the blogosphere, 6.09% of attention was devoted to this topic area while Twitter and the *Times* had 0.95% and 2.95%, respectively. This appears to be due to the fact that the blog *New Civil Rights Movement* devoted significant attention to this topic and was included in my dataset. At the same time, many of these civil rights issues are very partisan or controversial. This reflects some of the tendencies of the blogosphere as most of the blogs exhibit political leanings in some direction—either right or left. Various studies have confirmed that the new Internet media, and particularly political blogs are highly partisan and that this shapes their coverage (Baum and Groeling 2008, Benkler and Shaw 2010, and Karpf 2012b). There was no analogue to this source on Twitter and the *Times*, as a newspaper of record, cannot devote significant amounts of its agenda space arguing in favor of gay marriage, for example. Blogs, on the other hand, can.

Topic 16, Defense, also exhibited a huge disparity, despite the United States fighting a war in Afghanistan and conducting military operations in other areas of the world for the totality of the data collection period for the blogs and Twitter. Of course, parts of the *Times* data is also from war times, including the start of the war in Iraq, the Balkan conflict, along with the war in Afghanistan. The *Times* gives a total of 14.43% of its front-page space during the period to defense. In stark contrast, the Twitter sources discussed defense only 1.61% of the time with blogs a bit higher at 5.16%. The blogs are

higher because of specialized defense and foreign policy blogs such as *Daniel Drezner*, *The Cable*, and *The Long War Journal.* More broadly, as I discussed, the *Times* tends to focus more on important policy issues, one of those being defense and devotes significantly more attention to matters of defense—something everyone in the polity should care deeply about.

Space, Science, Technology and Communications, Topic 17, are more highly covered on Twitter than in either the blogs or the *Times.* I do not attribute this difference to anything characteristic or systematic. Rather, I attribute this to several of the Twitter accounts (@socialmedia2day, @slashdot, @wired, among others) focusing on consumer technology and social media as well as the chatter previously mentioned regarding space exploration including the Mars Curiosity rover and SpaceX Dragon capsule during the data collection period. However, it is important to note that Twitter offers a platform for the discussion of the role of social media in society and the economy as well as sustained chatter about space exploration, a topic interesting to many that receives only 2.32% of attention in the *Times.* It received 8.62% of attention on Twitter.

There was also a significant deficit in coverage of Topic 19, International Affairs and Foreign Aid, on Twitter. Only 10.81% of coverage was devoted to international affairs on Twitter, while both blogs and the *Times* devoted around 20% of coverage to international affairs. Initially, I thought this could be due to few major international events happening during the new media collection period and the *Times* covering many more international stories and wars over time, but that isn't the case. There were significant events in the Middle East among plenty of other routine international happenings during the data collection period and the discrepancy between blogs and

Twitter is unexplained by that. Therefore, it appears that there is just a categorical difference in coverage of international affairs and events in other countries on Twitter despite its global scope and reach.

State and local politics, Topic 24, do not receive substantial attention in any of the media, especially on Twitter. To an extent, that is expected because the Twitter accounts have a national, if not international audience. Although the *Times* does have a national audience, it is ultimately also a local newspaper for New York City and New York State. Two of the blogs, on the other hand, were largely state specific, *Uppity Wisconsin* and *Virginia Right*, which focused on politics within Wisconsin and Virginia, respectively. Despite that specificity, they were present on my aggregated list of influential US politics blogs. Other blogs, like *Ann Althouse*, also gave considerable attention to state politics. In the case of *Ann Althouse*, that was also largely dedicated to Wisconsin politics given the dynamic situation there during the data collection period regarding the attempted but unsuccessful recall of Governor Scott Walker. Many of the other stories in this topic were about state elections rather than actual governmental administration at the state or local level.

Moving to non-policy topics, there were also several disparities in coverage that merit consideration. Topic 28, Arts & Entertainment encompasses a wide variety of stories including celebrity news, music, movies, and less popular forms of art or diversion. The *Times* and blogs largely mirror each other in amount of front-page coverage devoted to the topic with just under 2.5% of their coverage being devoted to such topics. Twitter, in extreme contrast, devotes nearly 18.34% of its coverage to these

subjects. That difference is largely explainable with several ideas. One is that blogs and the *Times* devote considerably more attention to policy issues than Twitter.

The other explanation is based on the kinds of Twitter accounts included in the aggregated data set. There were numerous that devoted almost all of their attention to this type of content. These blogs include @usweekly, @todayshow, @instyle, @rollingstone, and @tvguide. Their combined effect is substantial enough to create this disparity in coverage. There was no analog to these sorts of accounts in the blog dataset. Celebrity news sells in the American media and these accounts have hundreds of thousands of followers hungry for the latest celebrity gossip or album review. That sort of coverage, on the other hand, would probably not sell on the front page of *The New York Times*.

A similar, but not as extreme of a difference was observed with Topic 29, sports and recreation. Blogs devoted hardly any of their coverage, only 1.89%, to sports and recreation. This largely makes sense given their general focus on politics or some other specific issue. The reason they displayed even that much coverage in the period for which data collected was because the 2012 London Summer Olympic games occurred during that time and coverage of an event of that spectacle was picked up by almost every media outlet. Again, Twitter devoted more attention to sports, with 10.14% of coverage being on Topic 29. Some of that is explainable by the @espn account, affiliated with the TV sports news network, *ESPN* devoting nearly all of its coverage to sports. However, during the Olympic games, other accounts displayed increased attention to sports including @todayshow, @big_picture, and @nytimesphoto. While all outlets were covering the Olympics to some degree, the Olympics are an event that captivates the world and was highly present in the Twitterverse. The *Times* devotes 4.10% of its coverage to sports,

which makes sense. Though not an important political or international topic, any large sports event is going to make the front page because people are interested in that. That goes beyond the Olympics to playoff games in baseball, the Super Bowl, or even a big regular season victory for a New York sports team.

The biggest, and perhaps most difficult to explain topic comes with Topic 99, the catchall category, miscellaneous. Of all of the *Times* stories, only 0.55% can be categorized as miscellaneous, or perhaps better phrased, uncodeable. These stories are not uncodeable because they are not readable or legible, for example, but rather, because the coder cannot determine a category in which the story belongs. In the *Times*, as I have discussed, space on the front page is very finite and costly. Therefore, if a story makes it onto the front page, it is going to be about a substantive topic.

In the new media, space is not so costly. An author can easily devote an entire blog post or Tweet to something that would be considered meaningless in the traditional media. For example, there were significant numbers of blog posts that were essentially devoted to "internal" news. By internal news, I mean blog posts announcing the appearance of one of the authors on a TV talk show, news about a site redesign, or a post saying that the author would not be posting for a few days while travelling. There are also roundup, or summary, posts that are not codeable. For example, some blogs have "link" posts where they just provide links to other interesting articles. Other blogs also publish roundup posts with several different stories, often in the morning or at the end of the week. Because these posts contained several substantive topics, they are not codeable under one topic.

The aforementioned summary posts are less common on Twitter given the 140 characters per post limit, but are not nonexistent. On Twitter, almost 20% of the Tweets were coded as miscellaneous. On both the blogs and Twitter, there are a significant number of human-interest stories that are not categorizable. According to the Boydstun codebook, human-interest stories should be coded 99. Although some human-interest stories might be coded under health or science and technology, for example, the majority of these posts are coded under Topic 99. Because of the ease of posting a Tweet, there are more posts like this on that platform. Additionally, there were certain accounts that posted almost all uncategorizable posts such as @instyle, which posts fashion related news—something that does not fall under any of the other topics. This is a characteristic difference of the Twitter platform and the low-entry and use costs of Twitter—users can post anything, no matter how seemingly meaningless it might be. Ultimately, the low-costs of online media permit the "front-page" publication of human-interest stories.

A summary of the percentage of coverage devoted to each of the twenty-seven topics in blogs, on Twitter, and in *The New York Times* is displayed in Table 5.4.

(Insert Table 5.4 about here)

This discussion should clarify how although attention appears to be similarly concentrated in the different media sources from a purely statistical perspective, the way that it is distributed can be different between the sources. In the pie graphs in Figures 5.3, 5.4, 5.5, and 5.6 that I previously discussed, coverage by topic is different in each media source. A further graphical representation of the difference between blogs, Twitter, and *The New York Times* front-page datasets, the stacked bar graph in Figure 5.8 shows how the proportion of coverage given to different topics in each medium differs. In Figure 5.9,

there is a similar figure, but broken down by the percent of coverage towards only policy issues. The differences in coverage continue to be present in the policy-only analysis, however these differences are less marked, especially when eliminating categories like Miscellaneous in Twitter. Therefore, among only policy issues, coverage is more evenly distributed in all media than across all topics.

(Insert Figures 5.8 and 5.9 about here)

Conclusion

In the introduction to this thesis, I predicted that in an Internet information utopia, there would be a greater level of diversity of attention in the new media compared to the traditional media. However, across both blogs and Twitter, in most cases, I observed a significantly lower level of diversity within a single source (individual blog or Twitter account) and when combined, the blogosphere and Twitterverse both displayed a similar, but marginally lower, spread of attention to traditional media sources both in the United States and in Europe. Therefore, my data indicate an absence of discernable difference in the spread of attention between the traditional and new media. Using this measure, it appears that the new media is just more of the same. That is, it is a reflection of what the traditional media are already covering.

However the way that this coverage is distributed is moderately different, especially on Twitter where a high percentage of non-policy coverage was observed. Overall though, the range of issues discussed is not observed to be statistically significantly different. The way that is distributed is noticeably different. Still, the Internet media has not lived up to its potential of distributing coverage to a wide variety of traditionally little mentioned topics. Major topics covered transcend the type of media.

Boydstun (2013) might attribute this to "agenda congestion," or the idea that it is hard to get new issues onto the media agenda (59).

Gatekeepers, such as newspaper reporters, editors, and publishers, typically dictate what is covered in the news (Shoemaker and Vos 2009, Gans [1979] 2004). Often, these governance decisions are based on what "sells." Thus, these behind-the-scenes forces are typically considered to be responsible for the relatively low levels of diversity of attention seen in the traditional media. Boydstun (2013) confirms this finding. She writes, "First, the front-page agenda is small. The scarcity of attention and the issue 'competition' it creates exacerbates the already disproportionate nature of how news outlets process information, contributing to the aggregate patterns in the news" (141). The new media offered the potential to eliminate many of these gates and factors. Baumgartner and Chaqués (2012) confirm a similarly low level of diversity in Spanish newspapers. My own research confirms that.

Though my analysis cannot confirm exactly what causes a concentrated spread of attention across policy topics, the influence of gatekeepers in the online media is one possibility. However, some authors, including David Karpf (2012b), disagree. He writes, "Media content is now spread through Twitter and the blogosphere, bypassing traditional gatekeepers" (7). I partially disagree. It is clear that there is something impeding an explosion in the spread of attention in the blogosphere and Twitterverse. It is possible that in lower trafficked sources than those that I analyzed that this would be true. However, the fact is not many people are reading those sources and thus their political impact is limited. The sources in my dataset are likely to have a greater impact on politics and political communication. Karpf does somewhat acknowledge this. He writes,

"Meanwhile, a variety of *institutional blogs* have served to augment the existing web based offerings of longstanding media, social, and political institutions. In the process, blogs have created new pathways into elite public discourse. Not all elite political blogs are created equal" (64). I hold that the elite nature of these blogs that are just "more of the same" is important. They are the blogs that are actually read and the ones that are likely to form a new, online political institution much in the way that newspapers have in the past. Further, it is obvious that given the links to traditional companies in the online media, there is a certain level of gatekeeping occurring. The data lend support to this possibility given the similarity in coverage to the traditional media. While Karpf may be on to something, I think that my analysis contradicts his outright assertion. Shoemaker and Vos (2009) confirm my suspicion and argue that while gatekeeping has certainly changed in the transition to the new media, it is not going to completely disappear anytime soon. The challenge they say is that it is more difficult to study and measure these forces in a highly dynamic environment (58-59, 130-131).

Earlier, I also discussed mimicking behaviors in the media and between different types of media. Since many online news sources included in my datasets do not have the same number of reporters as a newspaper might, they are often forced to rely on others' reporting and we see imitation in coverage (Boczkowski 2009, Phillips 2010). Therefore similar topics are frequently covered. This is another possible explanation. Boydstun, Hardy, and Walgrave's (N.d.) media storms (explained in Chapter 2), could be another possible explanation for this level of attention spread. Like other types of media, the new media tends to concentrate itself around a few issues that are the most salient at any given point in time. What I can confidently confirm though is that in my selected new media

sources, there is not a statistically significant difference in spread of attention across my set of topics than the traditional media displays.

Table 5.1: Blog Entropy Values

ID	Blog	Total Observations	HHI	N_HHI	Entropy	Total Policy Observations	Entropy-Policy Only	Percent Policy Coverage
1	American Thinker	240	0.16	0.13	0.73	221	0.73	92.08%
2	Andrew Sullivan	614	0.14	0.10	0.74	310	0.76	50.49%
3	Ann Althouse	795	0.12	0.09	0.76	515	0.76	64.78%
4	Atlas Shrugs	798	0.25	0.22	0.59	583	0.47	73.06%
5	Blog of Legal Times	765	0.18	0.15	0.64	687	0.63	89.80%
6	Daily Kos	564	0.31	0.28	0.56	493	0.53	87.41%
7	Digby/Hullabaloo	649	0.17	0.13	0.68	532	0.64	81.97%
8	Drezner	416	0.23	0.20	0.56	352	0.50	84.62%
9	Elder of Ziyon	790	0.67	0.66	0.23	654	0.05	82.78%
10	FiveThirtyEight	250	0.43	0.41	0.39	226	0.36	90.40%
11	Hot Air	572	0.21	0.18	0.66	477	0.66	83.39%
12	Informed Comment	357	0.27	0.24	0.59	312	0.55	87.39%
13	Lawyers, Guns, and Money	625	0.11	0.07	0.80	391	0.82	62.56%
14	Long War Journal	765	0.49	0.47	0.24	758	0.24	99.08%
15	Mental Recession	524	0.12	0.09	0.71	456	0.70	87.02%
16	Michelle Malkin	752	0.18	0.14	0.71	666	0.71	88.56%
17	New Civil Rights Movement	715	0.21	0.18	0.64	579	0.55	80.98%
18	Newsbusters	795	0.14	0.11	0.74	646	0.70	81.26%
19	Patterico's Pontifications	330	0.20	0.17	0.63	285	0.59	86.36%
20	Redstate	624	0.17	0.14	0.70	494	0.72	79.17%
21	Sultan Knish	343	0.15	0.12	0.68	265	0.62	77.26%
22	Talking Points Memo	520	0.19	0.16	0.61	485	0.60	93.27%
23	The Cable	416	0.48	0.46	0.35	405	0.34	97.36%
24	The Lonely	495	0.15	0.12	0.73	459	0.76	92.73%

	Conservative							
25	The Tory Diary	420	0.94	0.94	0.05	408	0.00	97.14%
26	TruthDig	781	0.11	0.07	0.77	622	0.78	79.64%
27	Uppity Wisconsin	402	0.65	0.63	0.28	396	0.28	98.51%
28	Virginia Right	324	0.11	0.07	0.75	268	0.72	82.72%
29	Yid With the Lid	215	0.14	0.11	0.68	181	0.65	84.19%
	Combined	15,856	0.11	0.08	0.77	13,126	0.75	82.78%
	Mean	547	0.26	0.24	0.59	453	0.57	84.00%
	Median	564	0.18	0.15	0.66	459	0.63	84.62%
	Min	215	0.11	0.07	0.05	181	0.00	50.49%
	Max	798	0.94	0.94	0.80	758	0.82	99.08%

Table 5.2: Twitter Entropy Values

ID	Account (@)	Total Observations	HHI	N_HHI	Entropy	Total Policy Observations	Entropy-Policy Only	Percent Policy Coverage
1	ABC	740	0.11	0.08	0.77	495	0.73	66.89%
2	big_picture	427	0.23	0.20	0.52	138	0.26	32.32%
3	breakingnews	760	0.22	0.19	0.65	559	0.51	73.55%
4	CNN	715	0.11	0.08	0.77	502	0.67	70.21%
5	cnnmoney	708	0.11	0.08	0.76	635	0.77	89.69%
6	davos	193	0.13	0.09	0.68	149	0.64	77.20%
7	ESPN	674	0.86	0.85	0.10	2	0.23	0.30%
8	gizmodo	705	0.26	0.23	0.51	415	0.43	58.87%
9	instyle	723	0.64	0.63	0.20	8	0.25	1.11%
10	io9	685	0.30	0.27	0.46	167	0.49	24.38%
11	latimes	738	0.08	0.04	0.83	464	0.81	62.87%
12	life	622	0.23	0.20	0.56	167	0.66	26.85%
13	mental_floss	693	0.25	0.22	0.59	197	0.77	28.43%
14	newscientist	679	0.22	0.19	0.58	455	0.53	67.01%
15	newyorkpost	744	0.14	0.11	0.71	394	0.66	52.96%
16	nprnews	719	0.09	0.05	0.83	513	0.79	71.35%
17	nytimesphoto	620	0.23	0.20	0.58	325	0.51	52.42%
18	politico	713	0.34	0.32	0.55	325	0.51	45.58%
19	rollingstone	692	0.84	0.83	0.14	29	0.61	4.19%
20	slashdot	740	0.23	0.20	0.62	654	0.59	88.38%
21	socialmedia2day	726	0.53	0.51	0.34	184	0.57	25.34%
22	telegraphnews	740	0.43	0.41	0.47	623	0.34	84.19%
23	todayshow	694	0.19	0.16	0.61	138	0.67	19.88%
24	tvguide	711	0.90	0.89	0.09	9	0.42	1.27%
25	usweekly	684	0.79	0.78	0.16	19	0.30	2.78%
26	whitehouse	639	0.08	0.05	0.82	468	0.82	73.24%
27	wired	724	0.17	0.13	0.65	393	0.62	54.28%
28	yahoonews	695	0.11	0.07	0.78	465	0.70	66.91%
	Combined	18,903	0.11	0.08	0.77	9216	0.80	48.75%
	Mean	675	0.32	0.29	0.55	318	0.57	47.23%
	Median	706.5	0.23	0.20	0.59	359	0.60	53.62%

	Min	193	0.08	0.05	0.09	2	0.23	0.30%
	Max	760	0.90	0.89	0.83	654	0.82	89.69%

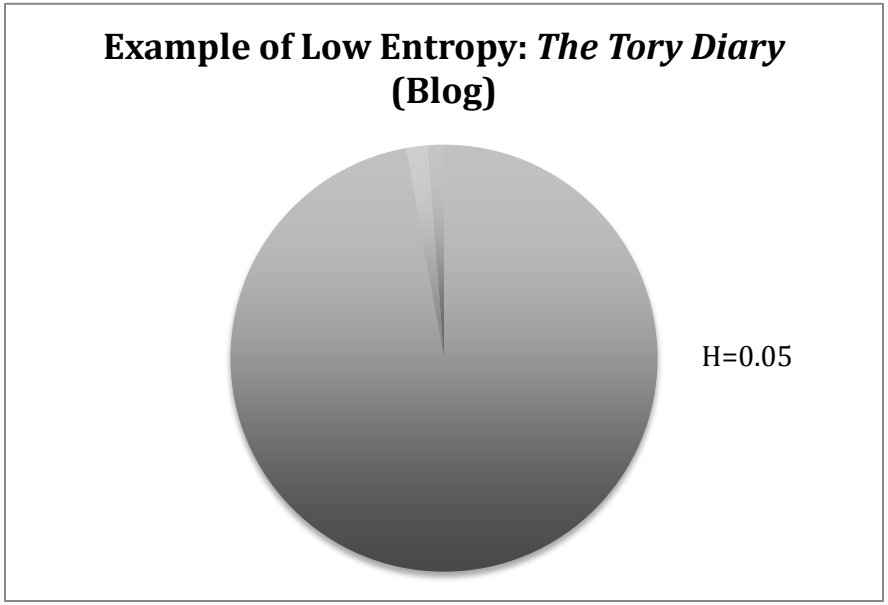
Table 5.3: Traditional Media Source Entropy Values

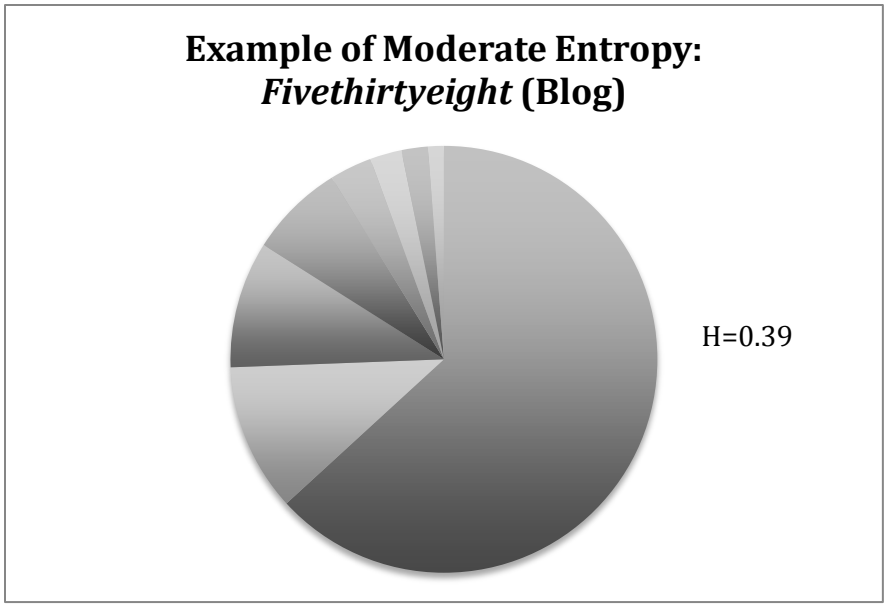
ID	Source	Total Observations	HHI	N_HHI	Entropy	Total Policy Observations	Entropy-Policy Only	Percent Policy Coverage
1	NYT Front Page	31,034	0.10	0.06	0.83	27,521	0.83	88.68%
2	NYT Front Page Quarterly Averages	705.5	-	-	0.79	-	0.79	-
3	NYT Index	49,126	0.07	0.04	0.88	39,927	0.88	81.27%
4	El Pais	50,770	0.09	0.05	0.86	41,610	0.85	81.96%
5	El Mundo	44,858	0.11	0.07	0.82	36,919	0.79	82.30%
6	Danish News Radio	191,564	0.19	0.16	0.74	180,706	0.73	94.33%
7	Times of London	21,844	0.07	0.03	0.89	17,856	0.88	81.74%
8	Neue Zürcher Zeitung	8,558	0.11	0.07	0.81	8,477	0.85	99.05%
	Mean	49,807	0.10	0.07	0.83	50,431	0.82	87.05%
	Median	37,946	0.10	0.06	0.82	36,919	0.84	82.30%
	Min	706	0.07	0.03	0.74	8,477	0.73	81.27%
	Max	191,564	0.19	0.16	0.89	180,706	0.88	99.05%

Table 5.4: Percentage of Coverage by Topic and Source

Topic	***NYT***	**Blogs**	**Twitter**
Macroeconomics (1)	3.11%	2.90%	1.40%
Civil Rights (2)	2.95%	6.09%	0.95%
Health (3)	5.80%	3.05%	2.96%
Agriculture (4)	0.54%	0.20%	0.37%
Labor and Immigration (5)	2.41%	2.45%	1.44%
Education (6)	2.94%	1.02%	0.97%
Environment (7)	1.14%	0.78%	0.54%
Energy (8)	0.96%	0.78%	0.43%
Transportation (10)	1.91%	0.67%	1.18%
Law & Crime (12)	6.73%	8.37%	6.69%
Social Welfare (13)	0.88%	0.51%	0.08%
Housing (14)	1.32%	0.11%	0.65%
Banking & Domestic Commerce (15)	4.02%	2.69%	3.33%
Defense (16)	14.43%	5.16%	1.61%
Science & Technology (17)	2.32%	1.51%	8.62%
Foreign Trade (18)	0.82%	0.23%	0.31%
International Affairs (19)	20.47%	19.49%	10.81%
Government Operations (20)	12.75%	20.75%	5.48%
Public Lands (21)	0.87%	0.11%	0.07%
State and Local Government (24)	2.30%	5.92%	0.85%
Weather (26)	1.85%	0.11%	1.09%
Fires (27)	0.42%	0.18%	0.81%
Arts and Entertainment (28)	2.48%	2.36%	18.34%
Sports (29)	4.10%	1.89%	10.14%
Death Notices (30)	0.86%	0.42%	0.73%
Religion (31)	1.06%	2.09%	0.37%
Miscellaneous (99)	0.55%	10.16%	19.77%

Figure 5.1: Comparison of Low, Moderate, and High Entropy for Blogs





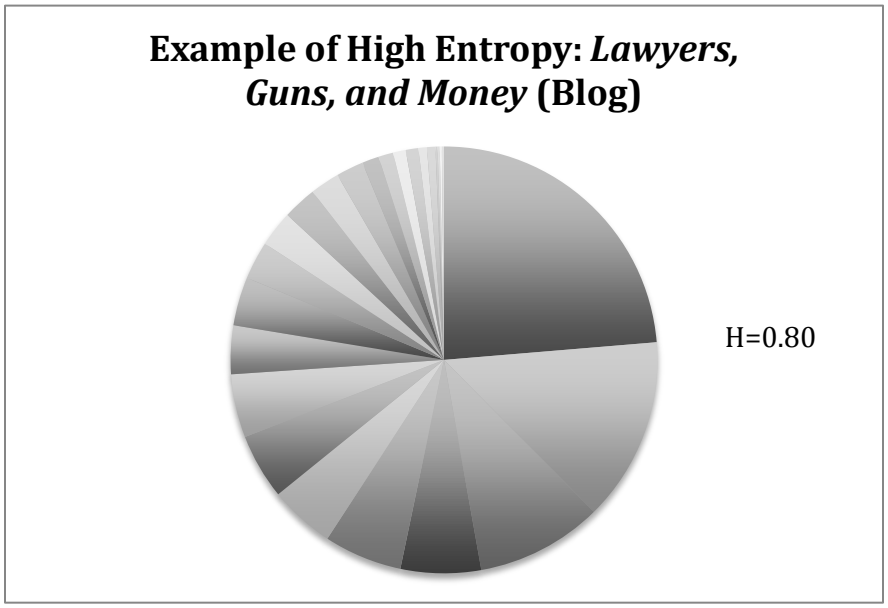
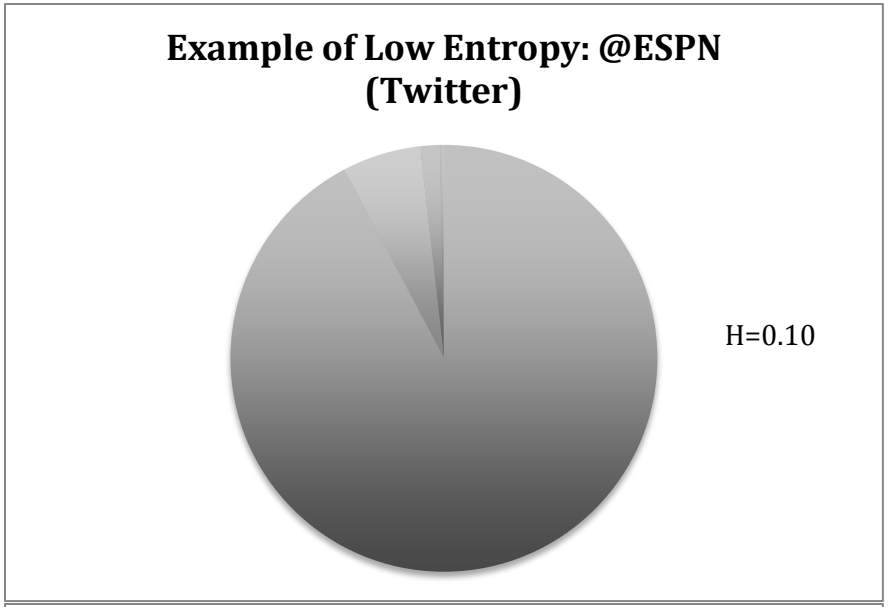
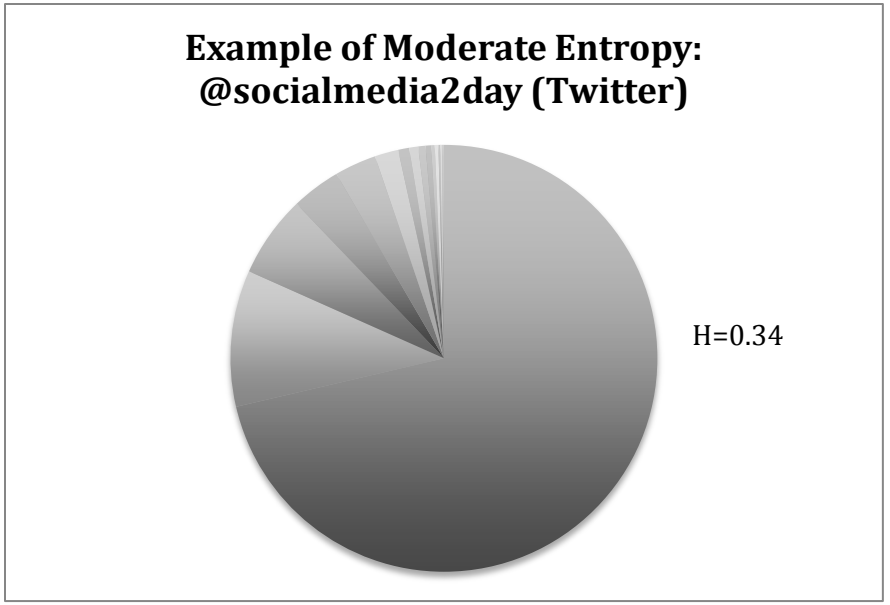


Figure 5.2: Comparison of Low, Moderate, and High Entropy for Twitter





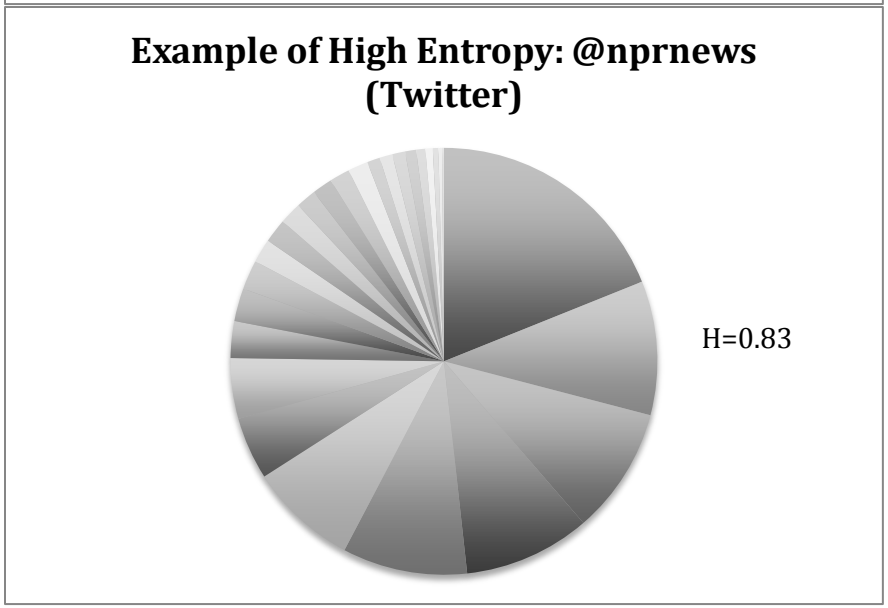


Figure 5.3: Pie Graph of Blogosphere Diversity

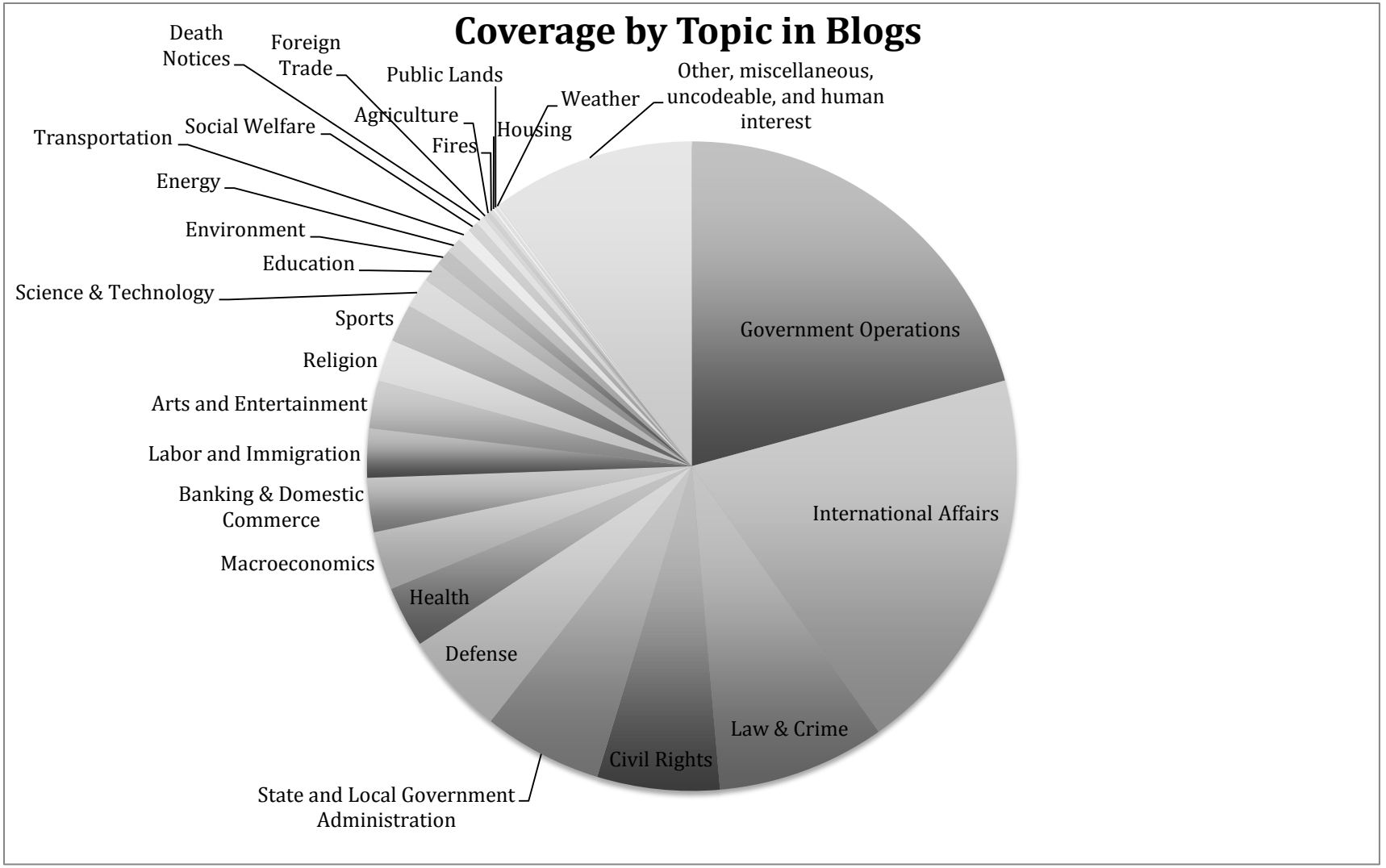


Figure 5.4: Pie Graph of Twitter Diversity

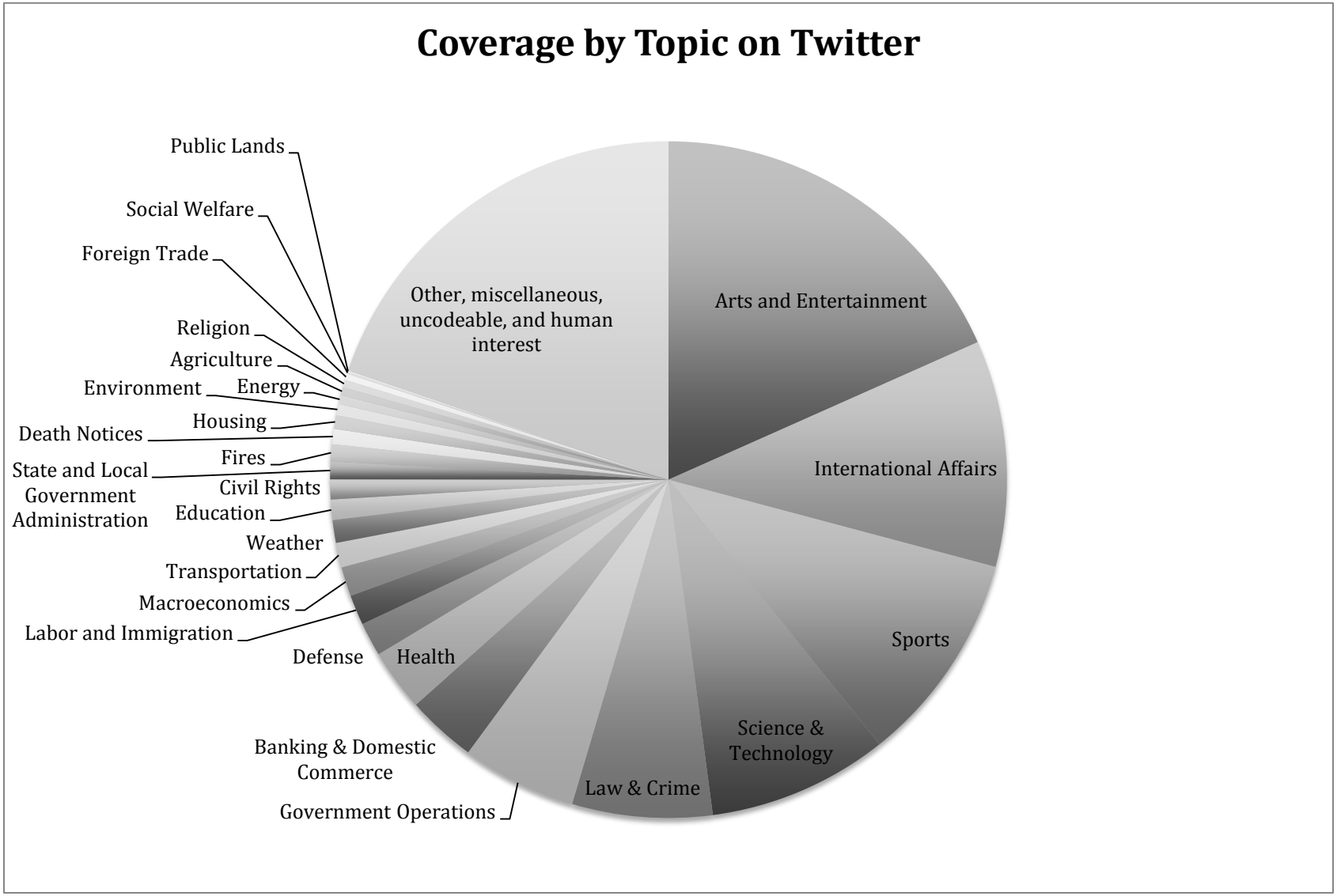


Figure 5.5: Pie Graph of *New York Times* Front-page Diversity

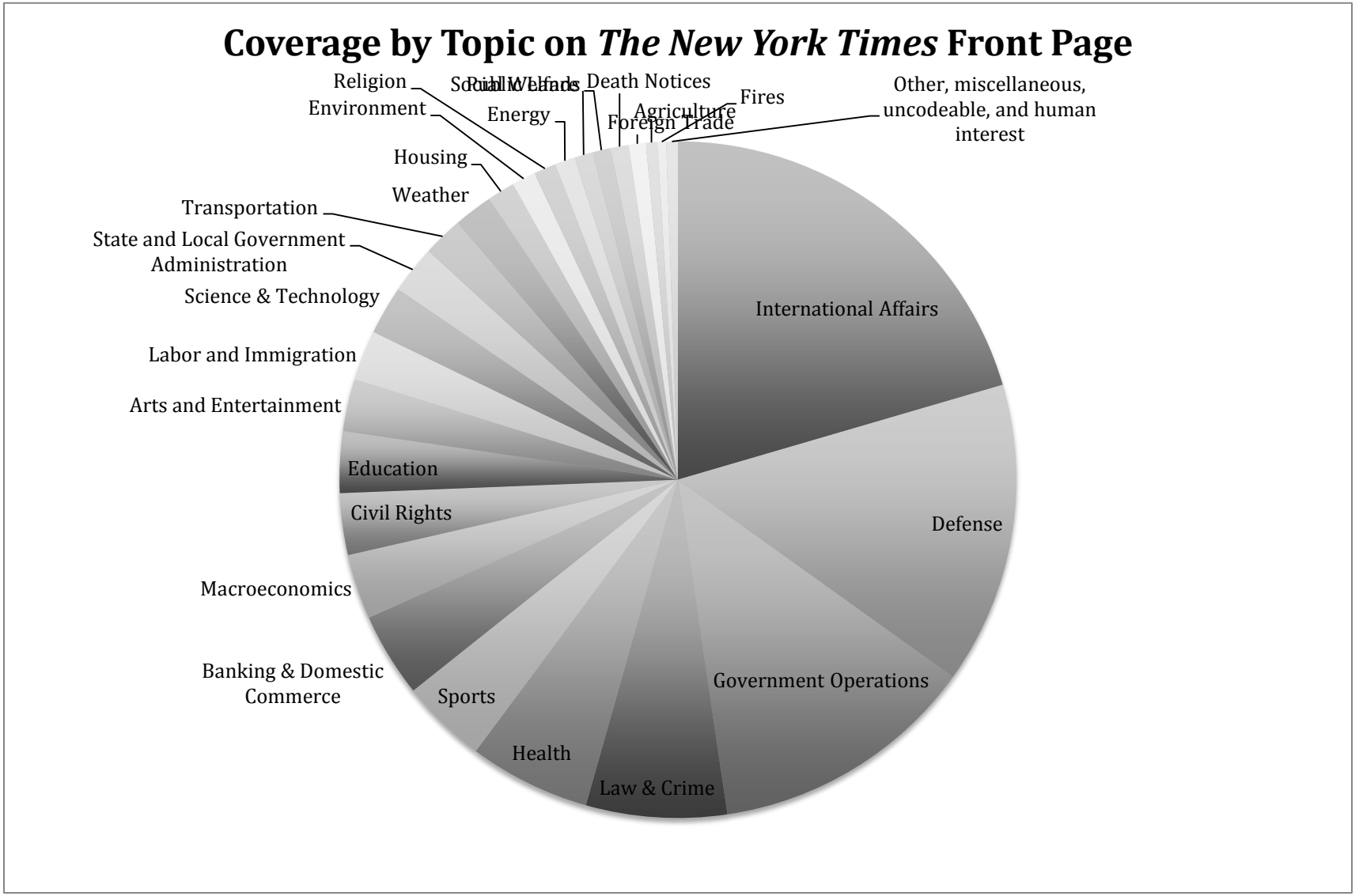


Figure 5.6: Pie Graph of *New York Times* Index Diversity

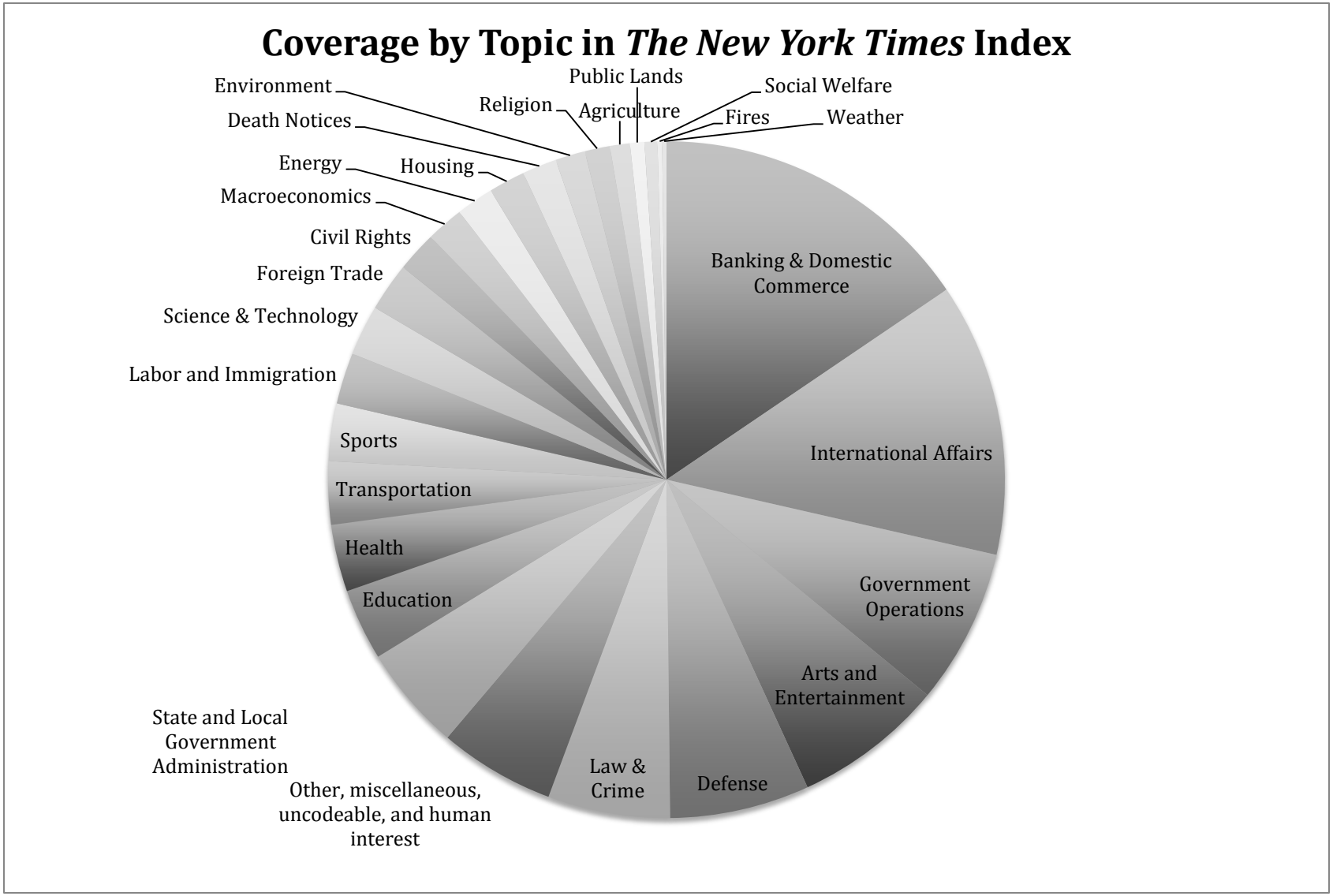
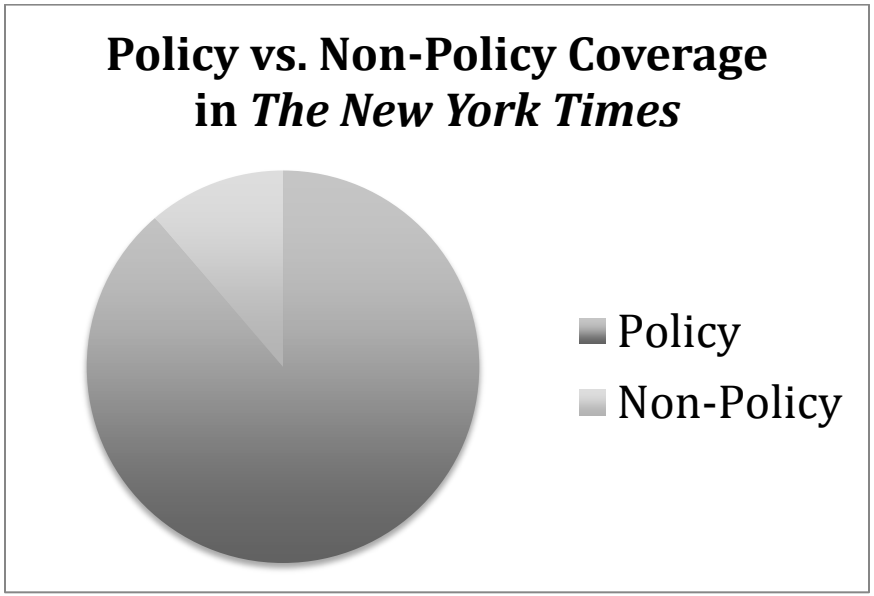
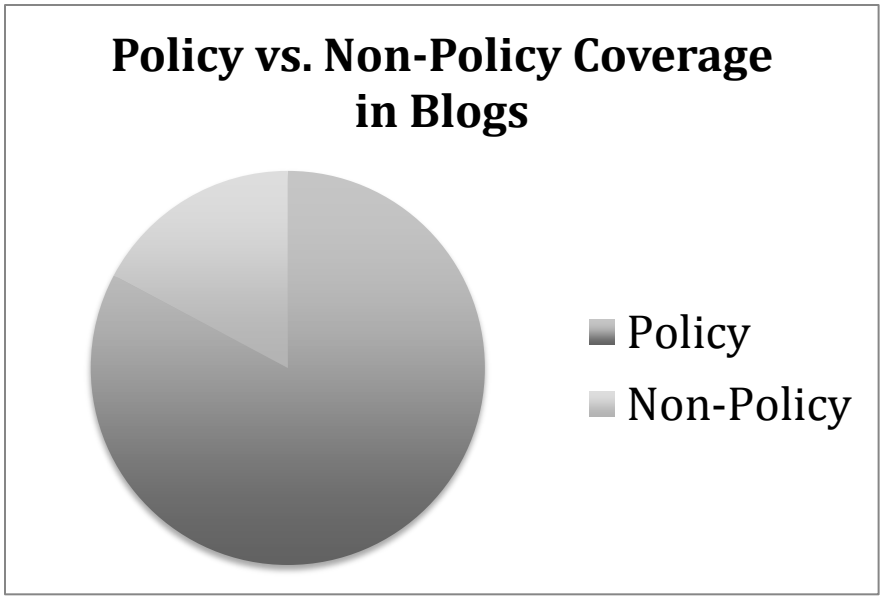


Figure 5.7: Policy versus Non-Policy Coverage in *The New York Times*, Blogs, and Twitter





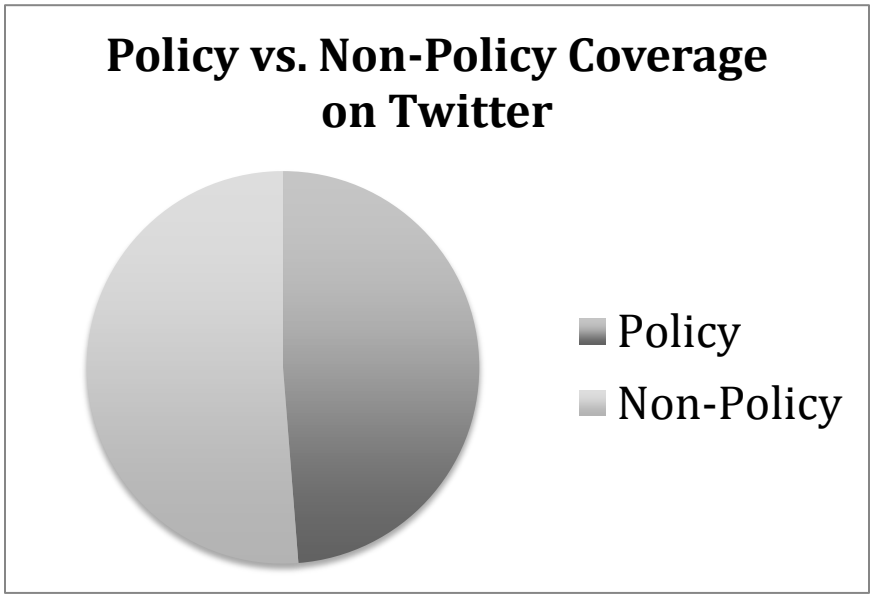


Figure 5.8: Stacked Bar Chart of Blog, Twitter, and *NYT* Diversity by Percentage of Coverage by Topic

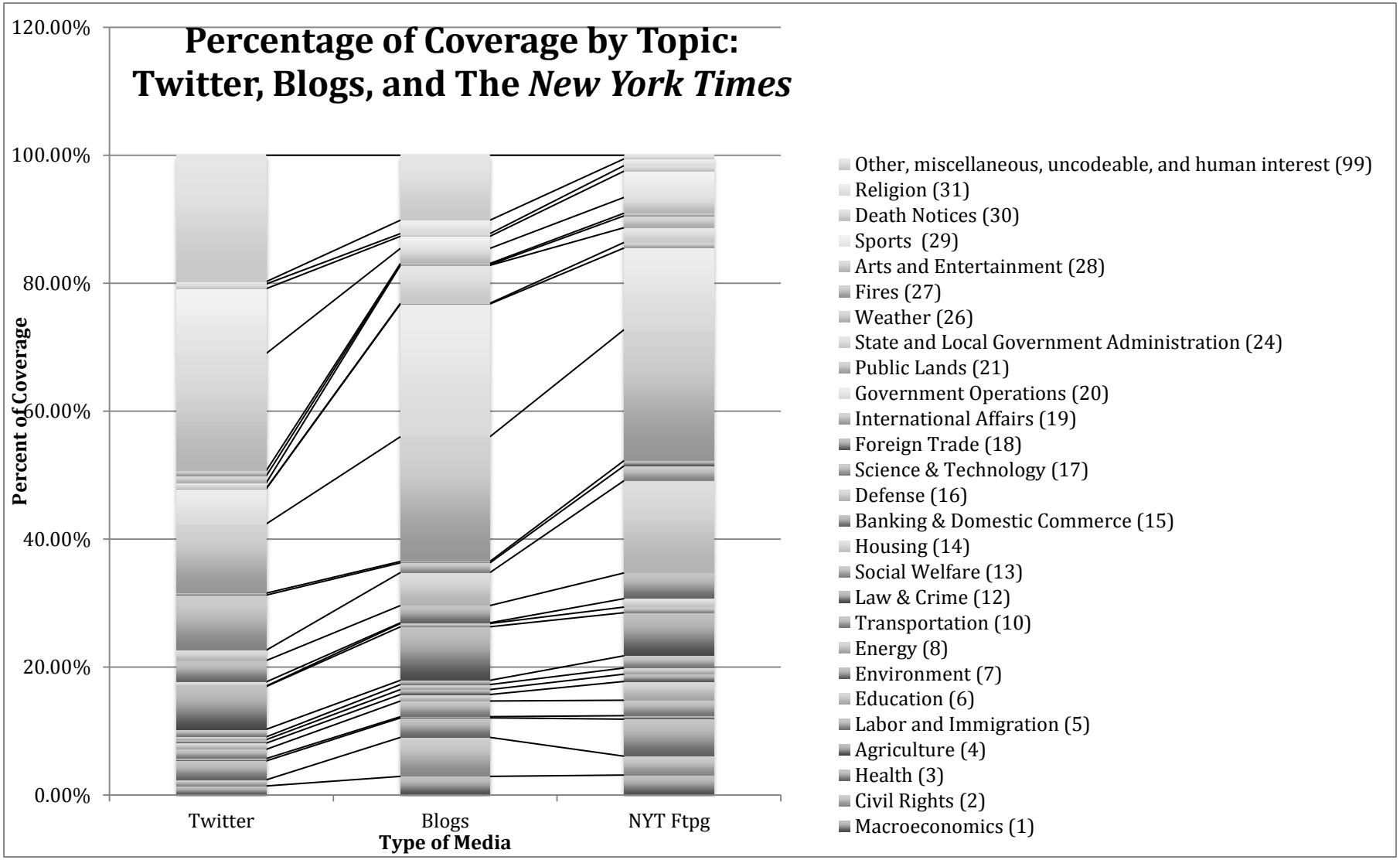
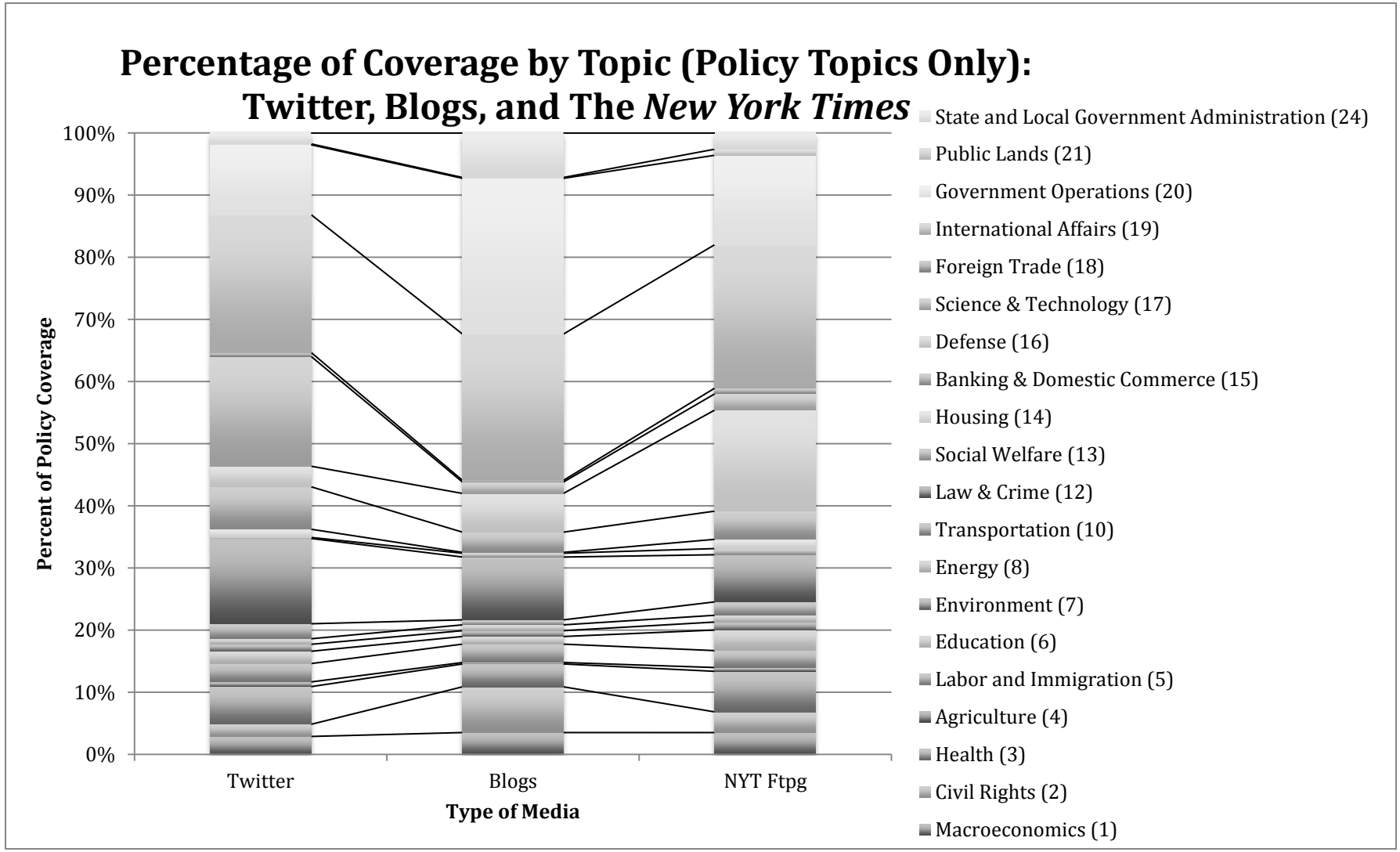


Figure 5.9: Stacked Bar Chart of Blog, Twitter, and *NYT* Diversity by Percentage of Coverage by Topic for Policy Relevant Topics Only



Chapter 6: Changing Time, Changing Coverage

The totality of information in a given source is certainly relevant to measure, as I did in the previous chapter. However, media are consumed on a daily basis. Nobody (except for researchers like myself) reads hundreds of day's worth of Tweets or blog posts in one sitting. Instead, they might read a few hundred tweets each day or a handful of blog posts. Likewise, people read a daily newspaper, or at least its online version comprised of the day's stories, each day. Most people do not read a week's worth of newspapers all at once. Therefore, it is also important to analyze how coverage changes over time.

In this chapter, I will analyze the amount of coverage given to different topics throughout time and the way which that coverage changes over time in different media sources and how attention given to individual topics within those sources changes over time. I will also make suggestions as to why that may be or may not be different between traditional and new media sources. Additionally, I will examine the percent changes in coverage to different topics and within different sources and utilize the measure of kurtosis to search for differences between the traditional and new media.

Friction in Media Agendas

Using this information, I will assess the amount of friction in different media sources, that is, how easily coverage changes over time. A system with high friction would exhibit little change in coverage over time, but when there is a change, that change would be drastic. On the contrary, a system with low friction exhibits frequent changes of variable size. According to Jones et al. (2009), this type of friction is present in almost all institutions. Baumgartner et al. (2009) similarly argue that many institutions show this

type of "stick-slip dynamic." Distributions like this are called leptokurtic distributions (607). This friction can have powerful effects. They explain:

> Friction means that decision makers underrespond to changes in the severity of problems when these remain below some threshold of urgency, focusing attention instead on those few areas where concerns are so great that they must be attended to immediately. However, in politics, thresholds are context dependent, not fixed. Further, the model is not balanced: increases in attention may be more subject to extremes than decreases. (608)

This has been well documented in various institutions including Congress, the presidency and the media. Baumgartner and Jones ([1993] 2009), call this punctuated equilibrium. Institutions, including the media, respond to events and attention quickly shifts to a new topic. Therefore, I expect the media in this study to behave no differently. However, if the Internet utopia were realized, I would expect a low-friction environment without these volatile shifts and the Internet media would rather be characterized by smooth shifts in attention over time.

Analyzing Changes Over Time in Institutions

Many researchers use this approach to examine changes within systems, and particularly on political agendas. Baumgartner et al. (2009) say that "We can assess these dynamics easily by looking at the left- and right-hand tails of the distributions" (608). I will use the same method. They also write that, "Virtually all distributions we have observed have a positive skew" (608). Based on my data up to this point, I also expect my distributions of changes in attention (coverage) over time to be positively skewed, notably so in the traditional media. In this study, Baumgartner et al. look at a variety of

sources of data including legislative hearings, elections, executive orders, budgets, and the media, as represented by *The New York Times,* in numerous countries. They find support for their hypotheses that changes in attention to different policy topics is positively skewed. They also turn to the measures of kurtosis and l-kurtosis that I will use in this study. In Jones et al.'s (2009) study of budgets they also use the measure of kurtosis.

In Jones and Baumgartner (2005), the authors examine changes in attention over time to different policy topics in budgets and in Congress. Their analysis of changes in attention over time will be used as a model for my own analysis in addition to the aforementioned articles. The widespread use of this type of analysis indicates that it is a strong way to study changes in attention, or in my case coverage, over time. This is important because, "Institutions and political actors are not only affected by constraints and resistance to change, but also to cascading and mimicking effects, processes which have the same effects, but possibly for different reasons, as high decision-making costs" (Baumgartner et al. 2009, 616). I expect to find similar mimicking effects in media sources, including between the traditional and new media. Therefore, this type of analysis will help to get at the possible sources of that mimicking behavior.

Boydstun (2013), in her study of *The New York Times,* uses many of the methods initially used by Baumgartner and Jones in multiple studies. She also turns to kurtosis and l-kurtosis to measure the change, and namely explosiveness of the media agenda in the *Times.* She finds that, "the *Times* front-page is highly skewed, and highly explosive. These patterns are not only stark in the abstract, but also when compared to other political agendas" (221). I expect my own analysis of her data to produce confirmatory results.

She also provides thresholds for comparison that I will use when discussing the results of my own analysis. She further confirms that l-kurtosis is the superior choice of statistic to use when studying agendas based on its use in other similar studies (220). She verifies her empirical analysis with the use of simulations that emphasize the importance of positive-feedback in producing a highly explosive and skewed agenda like observed in the *Times.* Her analysis suggests that this pattern is common across many types of media (233). I will keep Boydstun's experience in mind when conducting my own analysis, as it is largely an extension of hers. My own will expand the scope to a directly comparable study of international traditional media sources and new media sources.

Given the relatively short period of data collection for my new media datasets, I have chosen to analyze this data on a weekly, rather than monthly basis. Since I analyze the new media data on a weekly basis, I also analyze the traditional media on a weekly basis to keep my analysis consistent.

Dynamic Coverage

First, I will discuss the overall number of stories in different sources to a given topic over time. For this analysis, the data is broken down by topic and source. In this analysis over time, punctuations are clear and generally occur in response to significant policy events. In the blog and Twitter datasets, many of these punctuations occur at the same time given the overlapping data collection periods. In the data on the *Times,* similar punctuations can be seen in response to specific events.

The first example I will use is on the topic of health (Topic 3). In both the blog and Twitter datasets, a large up shoot in coverage on health is seen in both types of media in response to the US Supreme Court's decision on the Affordable Care Act where five

justices voted to uphold the law and its individual mandate provision. This is an example of the punctuated equilibrium seen in many different types of agendas. In Figure 6.1, line graphs over time for all types of media on the topic of health can be seen. In both the Twitter and blog graphs, the spike in late June and early July is in response to the Supreme Court's decision. The graph for the *Times* does not overlap with the same time period, so no direct comparison can be made. However, it is important to note that there is a certain level of sustained coverage and then spikes in response to specific policy events in all cases.

(Insert Figure 6.1 about here)

This analysis also reveals the level of friction present in the different types of media. All of the types of media here display relatively high levels of friction given that they respond sharply to events. That is, coverage tends to stay relatively constant for a certain period of time and then "slips" upwards or downwards in response to a specific event. That is particularly obvious in both the Twitter and blog data over a short period of time, where the response to the Supreme Court's healthcare decision, for example, is seen as a dramatic increase in coverage directed towards a specific topic.

Looking at the percent change in coverage to a specific topic in a certain type of media over time is suggestive of that friction as well. When there are significant percent changes in coverage to a topic over time, that media is displaying higher friction. In Figure 6.2, I have presented three corresponding charts reflecting the percent change in coverage to the topic of health in the same three media over the same period of time as in Figure 6.1. The spikes in these graphs indicate where there was a substantial change in the amount of coverage in a type of media from one week to the next. The larger the

spike, the higher the percent-change, and consequently the higher the friction in that type of media.

(Insert Figure 6.2 about here)

Looking at these three graphs, we see data on one topic only. Note that the y-axis scales are all slightly different given differences in the datasets. Overall, the *Times* displays the highest level of friction of the three types of media. In one case, there was over a 1000% change in coverage towards health on the front page, albeit in late 1997. Twitter displays the lowest friction with only case where it was above a 100% change. The blog data shows a level of friction somewhere in between the microblogging platform on Twitter and the traditional media front page of *The New York Times* with percent changes sometimes over 400%. In these three graphs, the *Times* appears to have the most sustained discussion of the topic of health with very few significant drops. Going back to Figure 6.1, it is clear that coverage is generally sustained on somewhere between one and five stories per week on the topic of health on the front page.

To expand this analysis, I will now examine the same graphs for another policy issue, Federal Government Administration (Topic 20). This topic includes all coverage of the actual administration and running of the federal government and also federal elections, including presidential and congressional elections. Given the data collection period for my blog and Twitter data took place in both a presidential and congressional election year, there was significant coverage devoted to this topic during the period. In Figure 6.3, I have presented an analogous display of graphs on this topic as I presented for health in Figure 6.1.

(Insert Figure 6.3 about here)

In all three panels, the graph displays a notable amount of coverage given to the topic of the federal government over time. There is not a single large punctuation in attention comparable to that in the health care graphs. However, there are several smaller jumps in what is a larger sustained conversation. Given the encompassing nature in this topic and diversity of events that might cause a jump in coverage, this is explainable. Attention might jump if there were a presidential debate, a specific candidate said something controversial, or if there was a large debate around the nomination of a Cabinet member. Given this, the more frequently volatile nature of coverage is understandable.

Again, in Figure 6.4, I have presented the percent change in coverage over time for the federal government administration like I did for all three types of media for their coverage of health in Figure 6.2. This data largely confirms what I observed about the level of friction with respect to the health topic previously in this chapter. Overall, Twitter has the least amount of friction and the smallest percent changes in coverage. Across time, it actually appears that blogs and the *Times* display similar levels of friction, however in certain cases the *Times* displays significantly higher percent changes in coverage. My data do not, however, give me the ability to say that if my blog data was extended to a longer time frame, that I would never see such an extreme change in blogs like observed in the *Times.*

(Insert Figure 6.4 about here)

This trend is also explainable. On Twitter, it is easy to instantly respond to an event with a large burst of coverage. There is virtually no additional cost or quite frankly, much effort needed, to send another Tweet on a topic. In the *Times*, one story is very

"expensive" given the highly finite nature of space on the front page. Although blogs are not governed by nearly the same level of constraints as a newspaper, it is still more difficult to write a blog post and publish it than it is to post a Tweet. Also, some blogs have some of the traditional gatekeeping forces that are typically associated with traditional media outlets. Given this, blogs displaying a higher level of friction than Twitter is not surprising. Further, the "cheapness" of Twitter also allows for a sustained conversation whereas a blog poster must decide what they are going to post about among many topics. Therefore, a sustained conversation is less likely and changes in topics covered and in the attention given to a specific topic will be more significant.

I will now turn this analysis towards a non-policy topic, sports (Topic 29). In Figure 6.5 there are again three graphs showing the attention over time to sports and in Figure 6.6, there are three graphs showing the percent changes in attention over the same time period in the same sources for the same topic. The spikes in August in the blog and Twitter data are in response to the 2012 Summer Olympic Games in London. Thinking back to Chapter 5, coverage is more sustained for sports on Twitter because the blogs are overall more policy focused while the Twitter dataset includes accounts such as ESPN. Again, this non-policy data supports my conclusion that blogs and newspapers are higher friction environments than the hyper-new media, Twitter.

(Insert Figure 6.5 and 6.6 about here)

Although this analysis of change in attention over time has thus far been rather basic and not overly complex mathematically, it has revealed much about the different media environments in the traditional and new media. Twitter, overall, is capable of sustaining a larger conversation on issues over time given its low cost and ease of

authorship. As a result, it is also the media that displays the lowest level of friction. Blogs and the *Times* appear to be more similar over time than Twitter is to either of them. Both are relatively high-friction environments that although capable of sustaining conversation over time on different topics, these conversations are limited in overall size. My data analysis is not capable of discussing the scope or diversity within these topic-level conversations. Ultimately, space in these two types of media is more finite and costs of authorship are higher.

Using the Measure of Kurtosis to Analyze Changes Over Time

I will now turn to a different type of analysis, bringing all of this data together across topics. This goes back to the use of kurtosis and l-kurtosis to measure the way that coverage changes week to week in different types of media. Graphically, this can be displayed using a frequency-distribution histogram. First, I will analyze my blog data. Using l-kurtosis, I can assess the level of explosiveness of the combined blog media agenda. According to Boydstun (2013), a normal distribution has an l-kurtosis of 0.123 and anything higher is considered to be a leptokurtic distribution (220). In Table 6.1, the number of weekly-topic observations (in essence, the number of observations that can actually be used in the analysis and excluding zeroes), the kurtosis, and l-kurtosis value are displayed for all blogs in the dataset as well as the combined value that my graphical analysis is based on.

The combined blog data, based on 303 weekly-topic observations, has an l-kurtosis value of 0.36, well above the 0.123 threshold value for a leptokurtic distribution. Most agendas are leptokurtic, meaning they are highly skewed and explosive (Jones and Baumgartner 2005, 110-112). All of the individual blogs are also above the threshold,

though one barely so, with an l-kurtosis value of 0.13. Uppity Wisconsin, an issue-based, blog is the most leptokurtic with an l-kurtosis value of 0.70. Most, however, are around the combined value for the entire blogosphere. Regardless, I can say that the blogosphere is an explosive agenda.

(Insert Table 6.1 about here)

In Figure 6.7, there is a histogram that is a frequency distribution of all of the weekly percent-changes in coverage in the combined blog dataset, truncated at 300. This is a highly skewed distribution. A normal curve is overlaid on the distribution and it is apparent that this is very far from a normal distribution. Therefore, just as Boydstun (2013) observed for *The New York Times* at the monthly level, this media agenda is highly explosive and highly skewed (217-221). In that respect, the blog agenda appears to confirm what Boydstun concluded about media agendas in her analysis of *The New York Times.*

(Insert Figure 6.7 about here)

Although I used Boydstun's dataset in my own analysis, she did her analysis of coverage over time at the monthly level. This is arguably a more appropriate level to analyze at given the expanse of the period her data covers. However, in seeking to provide a uniform analysis with my new media data, I have also analyzed her data at the weekly level. In Figure 6.8, there is another weekly frequency distribution based on the *Times* data. In this case, I truncated the distribution at 200. Although Boydstun's monthly data had a clear cluster around zero, this data is similarly suggestive though not as explicit since it is at the weekly level. Still, it is indicative that the *Times* front page is a

skewed and explosive agenda. This is true at both the monthly and weekly level based on both Boydstun's and my analysis.

(Insert Figure 6.8 about here)

In Table 6.2, I have provided the number of weekly-topic observations, kurtosis values, and l-kurtosis values for the *Times* dataset and the other international, traditional media datasets I have analyzed in this thesis. At the weekly level, the *Times* front page data, based on 6,430 observations, has an l-kurtosis value of 0.25. This value is slightly lower than what Boydstun (2013) calculated at the monthly level. She calculated an l-kurtosis value of 0.344 at the monthly level (220). Thus, at the weekly level, the *Times* front page is a less explosive agenda. This makes sense, because from one week to the next, it makes sense that topics might stay on the front page and the change will be less than it would be from month to month. Conversations are more likely to be sustained in consecutive weeks than they are in sequential months.

(Insert Table 6.2 about here)

The *Times* index of all stories that I have also previously analyzed in this thesis has a slightly higher l-kurtosis value of 0.26. While this difference is inconsequential, I expected to observe a greater different in explosiveness and skew between the front page and the index given that conservations on more topics can be more easily sustained elsewhere in the paper than on the highly competitive front page. Therefore, it appears that the *Times* as a whole is a relatively uniformly explosive and skewed agenda.

With respect to the international media, l-kurtosis values on a large number of observations for all media outlets range from 0.24 to 0.31. Therefore, none of the international media outlets are particularly more or less skewed or explosive than one

another or than their American counterpart. However, it can be concluded that all of these international media agendas are leptokurtic.

Going back to the new media, in Table 6.3 there is a similar table to that which I presented for blogs that has the number of observations, kurtosis value, and l-kurtosis value for all Twitter accounts in my dataset as well as a combined value for this "Twitterverse." Overall, the combined l-kurtosis value for all Twitter accounts across all topics is 0.39, just slightly higher than the overall blogosphere value. Again, most individual Twitter account l-kurtosis values are clustered around the combined value and range from 0.14 to 0.58. ABC's Twitter account with the minimum l-kurtosis value of 0.14 is just slightly leptokurtic and close to the value of a normal distribution, making it not very explosive. However, again I have observed that Twitter is a highly skewed and explosive media agenda just like the blogs and to a lesser extent, the *Times.*

(Insert Table 6.3 about here)

In Figure 6.9, I provide one final frequency distribution of all of the weekly percent changes for the Twitterverse. For this histogram, I truncated the data at 400. Again, this agenda is obviously highly skewed with respect to the weekly percent changes. The frequency distribution here supports that it is the most skewed agenda of the three presented.

For a basis of comparison, I created a simulated dataset representative of the Internet utopia envisioned earlier. In this case, it would be a normal distribution across time where events are discussed in uniformity based on their importance. That is, not all events are discussed equally, but they are equally distributed across these topics. In order to do this, I started with the *Times* front-page dataset that I have used throughout this

thesis and I created a new random variable based on a normal distribution with a mean of 3.44 and a standard deviation of 0.0417. These values came from the average number of stories across all weeks for all topics. Then, using Stata, I created this random normal variable with a value for each date already in the dataset. Then, I conducted the same type of data analysis as I did for my real datasets. In Figure 6.10, there is a frequency distribution based on this random normal variable.

(Insert Figure 6.10 about here)

In this analysis, the distribution had an l-kurtosis value of 0.13, close to the defined l-kurtosis of a normal distribution of 0.123. In this case, the distribution of weekly percent changes is highly normal and almost perfectly follows the overlaid normal distribution curve. Also, most values are clustered around zero, showing that in the Internet information utopia, there would be higher levels of sustained conversation across all topics and changes would be smooth rather than the volatile changes in coverage observed in the actual media datasets I have previously analyzed. This is not a skewed or overly explosive agenda.

This simulation serves a simple purpose. By comparing not only the l-kurtosis value of this information utopia to the realized l-kurtosis values of the datasets in my analysis, but also by looking at the histogram in Figure 6.10 and those in Figures 6.7, 6.8, and 6.9, it is clear that the actual media, both traditional and new, are not representative of this Internet utopia. Instead, the new and old media largely mirror each other with regard to this characteristic. Although certain gains have been realized including less volatile changes on Twitter and the ability to have a more sustained conversation on a wider variety of issues, Internet media as they currently stand, while providing a wealth

of valuable information, are far from achieving the information paradise that some scholars once envisioned they might.

Conclusion

Although I analyze a much shorter period of data on the new media than I do on the traditional media, the conclusions are clear. Again, as was true for the differences in spread of attention, the new media is far from living up to its promise of an information utopia with regards to the changes in coverage over time. The media agendas of newspapers, blogs, and Twitter all are highly explosive and skewed. In contrast to my predictions in the case of an Internet utopia in my introduction, these media are again roughly the same. However, the traditional media are slightly more explosive and skewed than the new media, though only marginally so.

Reflecting back on the predictions made in my introduction, attention in the new media does not shift any more smoothly over time than attention in the traditional media does. Rather, like others have observed in the traditional media and in other agendas, changes over time are highly volatile (Boydstun 2013, Baumgartner and Jones [1993] 2009, Jones and Baumgartner 2005, Baumgartner and Chaqués 2012). These shifts are indicative of a media environment high in friction. The view held by Nahon et al. (2011) that coverage in the new media is highly volatile appears to hold true. Regardless of subtle differences, it is still explosive. Graphically, it is evident that these shifts over time are dramatic and marked. The Internet clearly moves in fitful bursts like many other things in society. These effects are clearly observable in all types of media included in my analysis. The fitful changes are also indicative of a media environment governed by a status quo effect. What was in the news today is likely to be in the news tomorrow.

However, when an important event occurs, the media dramatically switch their coverage to that. If the status quo effect were not present in the new media, it would be highly unlikely for the media to change in such a volatile manner.

Despite the opportunities for sustained conversation on a wide variety of topics on the Internet over time and the small improvements that have been made, like in other media agendas, the Internet is affected by events in the real world. Media online and offline change in response to events. Baumgartner and Jones's (2009) punctuated equilibrium is at work again. As should be clear, the media are highly dynamic and constantly changing.

Table 6.1: Weekly Kurtosis Values for Blogs

Blog	Observations	Kurtosis	L-Kurtosis
American Thinker	28	12.38	0.26
Andrew Sullivan	100	8.66	0.31
Ann Althouse	111	10.07	0.24
Atlas Shrugs	86	27.41	0.35
Blog of Legal Times	71	7.69	0.25
Daily Kos	80	21.09	0.43
Daniel Drezner	21	4.92	0.24
Elder of Ziyon	33	11.20	0.40
FiveThirtyEight	15	6.46	0.34
Hot Air	77	12.83	0.26
Digby/Hullabaloo	76	9.20	0.24
Informed Comment	41	4.37	0.13
Lawyers, Guns, and Money	114	55.44	0.51
Long War Journal	28	3.16	0.15
Mental Recession	35	9.14	0.31
Michelle Malkin	65	4.35	0.17
New Civil Rights Movement	66	5.09	0.18
Newsbusters	117	6.12	0.25
Patterico's Pontifications	40	4.57	0.23
Redstate	92	16.95	0.41
Sultan Knish	28	5.37	0.26
Talking Points Memo	54	8.23	0.20
The Cable	25	4.16	0.21
The Lonely Conservative	77	5.41	0.21
The Tory Diary	14	6.56	0.30
TruthDig	121	28.68	0.33
Uppity Wisconsin	20	16.82	0.70
Virginia Right	22	3.77	0.19
Yid With the Lid	34	4.57	0.16
Combined	303	44.14	0.36
Mean	58.31	11.19	0.28
Median	54	7.69	0.25
Min	14	3.16	0.13
Max	121	55.44	0.70

Table 6.2: Weekly Kurtosis Values for Traditional Media

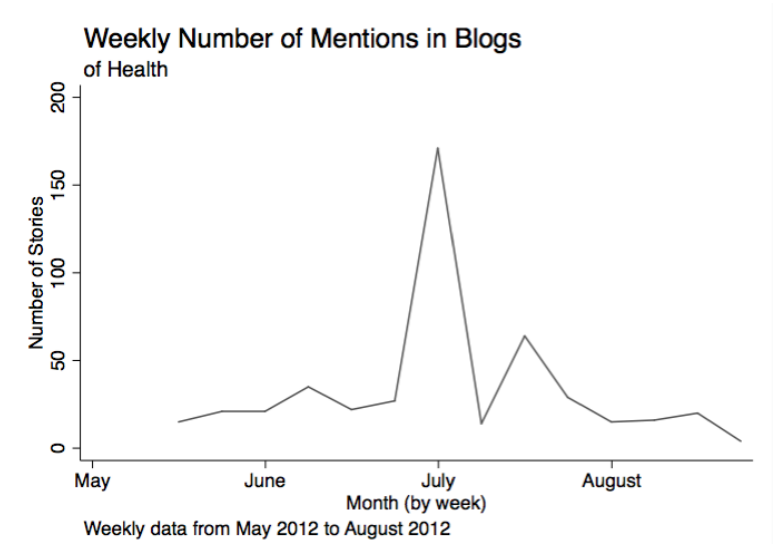
Source	Observations	Kurtosis	L-Kurtosis
New York Times Front Page	6,430	30.36	0.25
New York Times Index	15,081	10.12	0.26
El Mundo	2,302	26.49	0.26
El Pais	2,378	24.24	0.27
Neue Zürcher Zeitung	2,417	11.86	0.24
Times of London	6,365	13.20	0.31
Danish News Radio[20]	-	-	-
Mean	5,828.83	19.38	0.26
Median	4,391	18.72	0.26
Min	2,302	10.12	0.24
Max	15,081	30.36	0.31

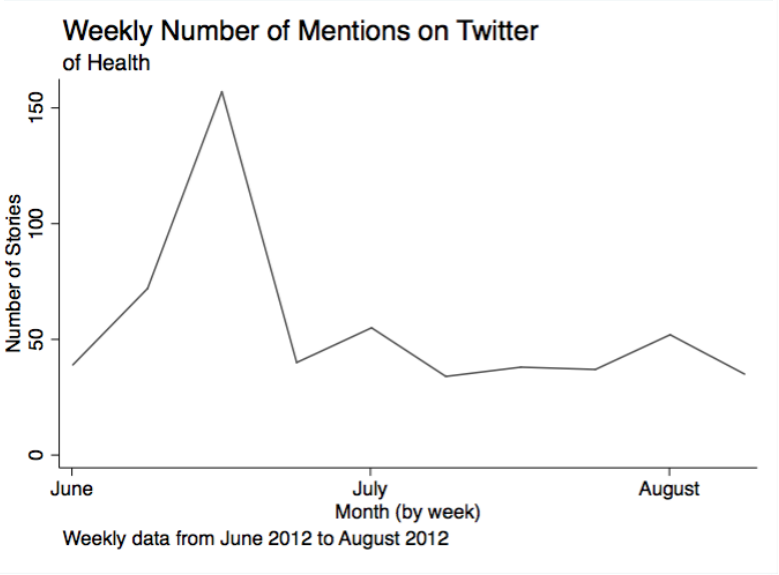
[20] Due to issues with the dates in the initial dataset, calculations over time were not possible.

Table 6.3: Weekly Kurtosis Values for Twitter

Twitter Account (@)	Observations	Kurtosis	L-Kurtosis
abc	104	4.44	0.14
big_picture	20	12.52	0.45
breakingnews	93	6.23	0.21
cnn	103	12.72	0.27
cnnmoney	99	6.14	0.23
davos	10	3.36	0.37
espn	10	3.25	0.27
gizmodo	58	9.35	0.29
instyle	22	10.00	0.33
io9	48	4.91	0.23
latimes	126	9.04	0.21
life	39	8.46	0.25
mental_floss	75	42.28	0.34
newscientist	59	13.67	0.39
newyorkpost	92	6.96	0.16
nprnews	124	24.55	0.29
nytimesphoto	24	8.68	0.43
politico	78	13.26	0.24
rollingstone	19	4.65	0.28
slashdot	90	11.07	0.22
socialmedia2day	33	12.82	0.41
telegraphnews	62	8.93	0.26
todayshow	51	38.67	0.58
tvguide	15	3.32	0.27
usweekly	25	6.29	0.29
whitehouse	51	4.35	0.14
wired	69	9.07	0.17
yahoonews	102	9.96	0.29
combined	228	78.34	0.39
Mean	60.75	11.03	0.29
Median	58.5	8.98	0.27
Min	10	3.25	0.14
Max	126	42.28	0.58

Figure 6.1: Attention Over Time to Health in Blogs, Twitter, and *The New York Times*





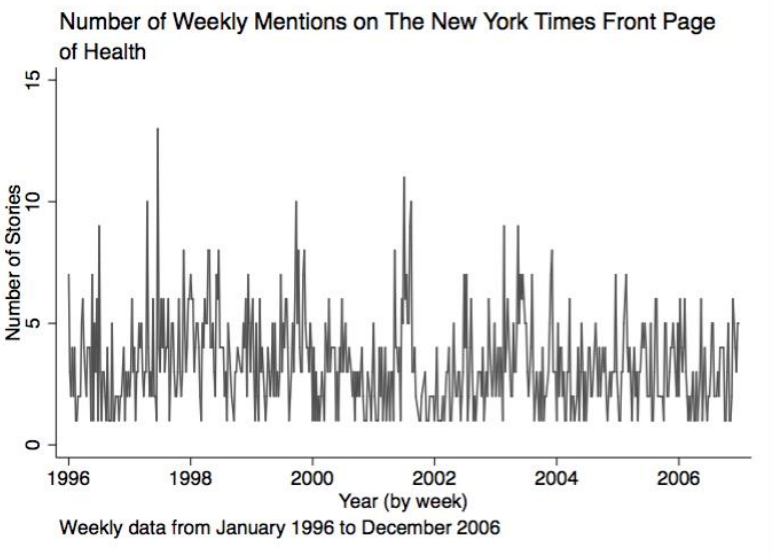


Figure 6.2: Percent Change in Coverage to Health in Blogs, Twitter, and *The New York Times*

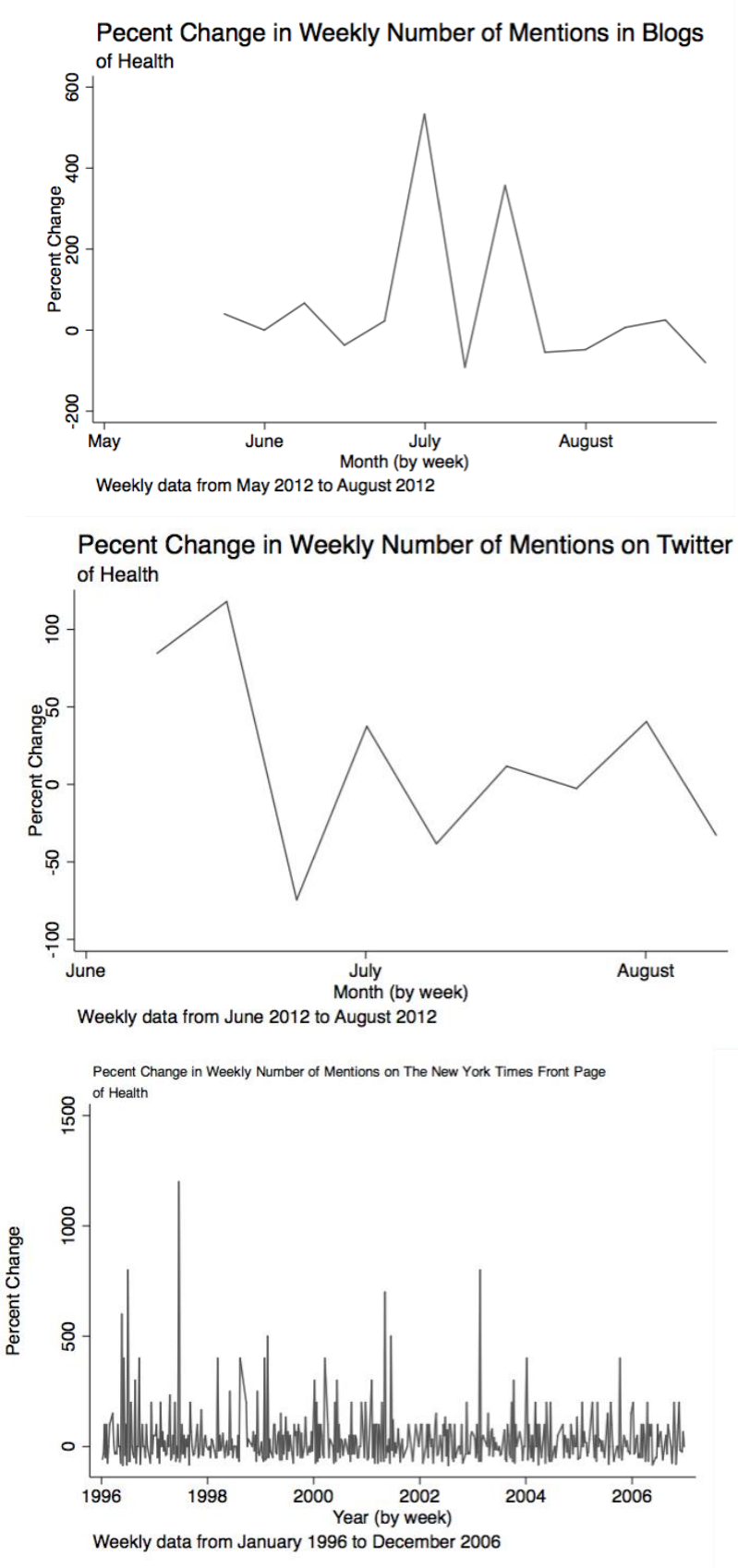
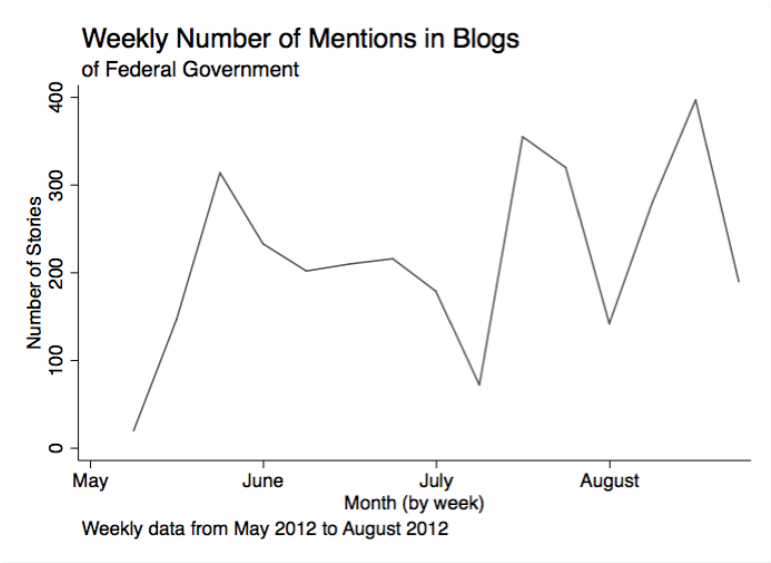
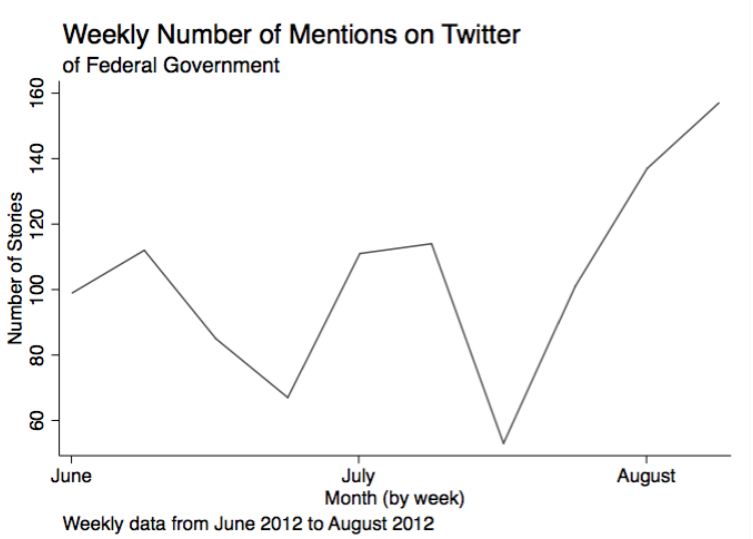


Figure 6.3: Attention Over Time to Federal Government Administration in Blogs, Twitter, and *The New York Times*





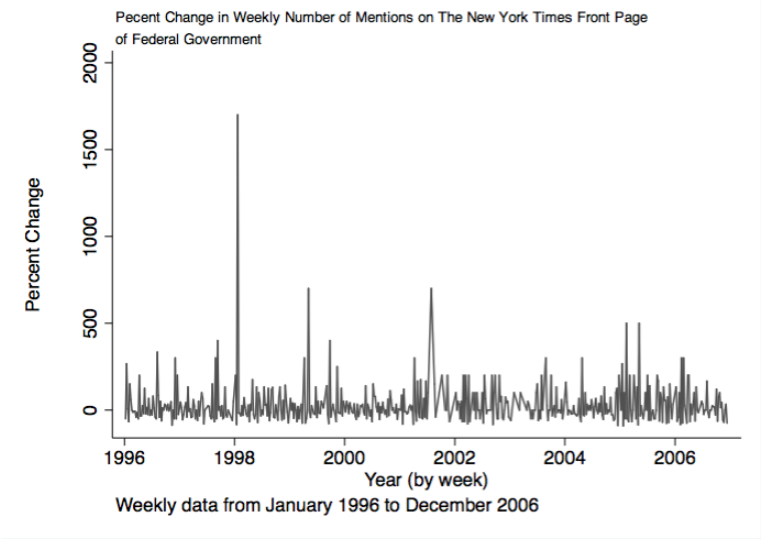


Figure 6.4: Percent Change in Coverage to Federal Government Administration in Blogs, Twitter, and *The New York Times*

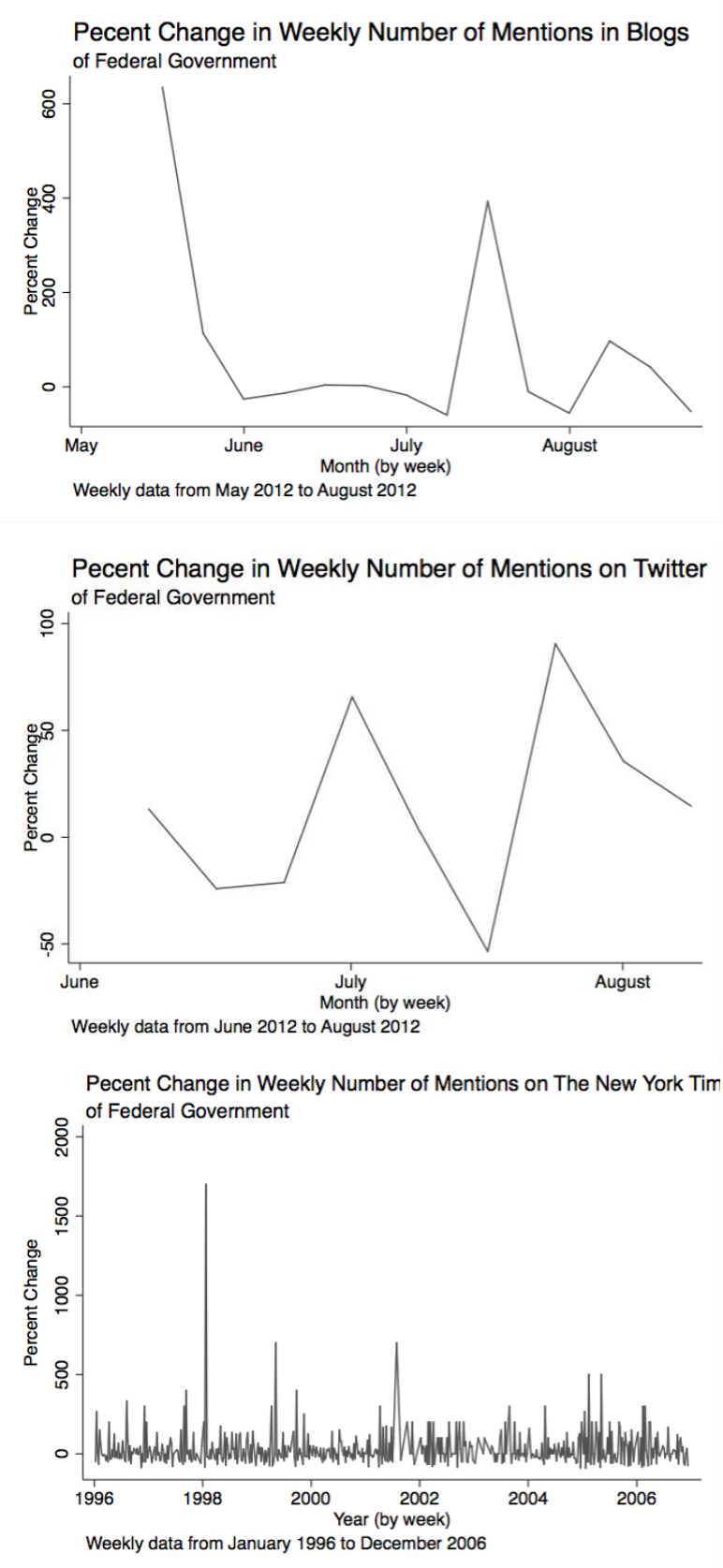
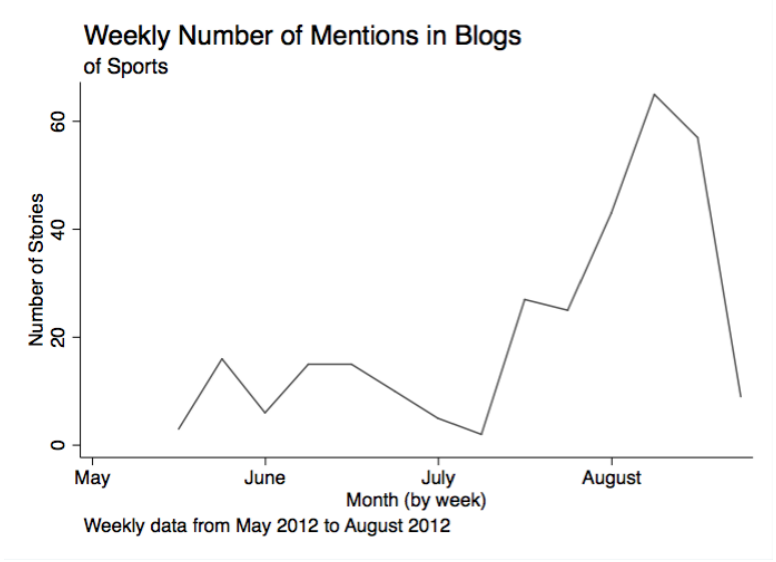
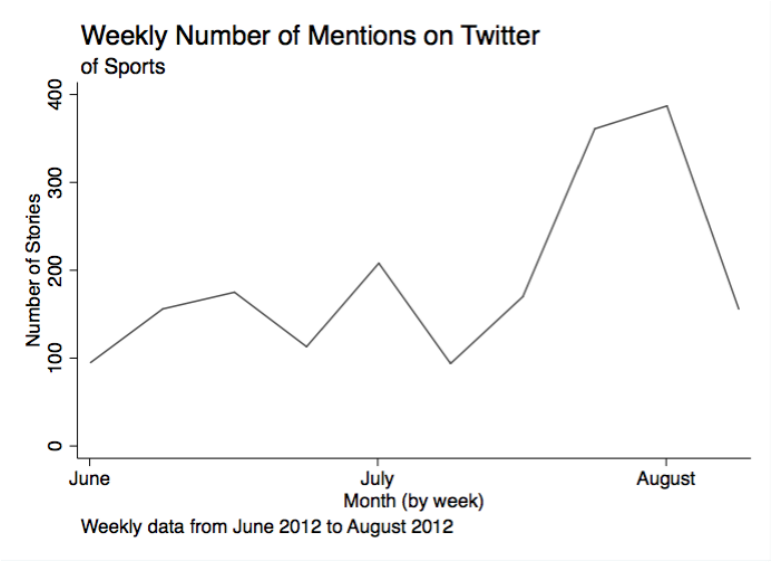


Figure 6.5: Attention Over Time to Sports in Blogs, Twitter, and *The New York Times*





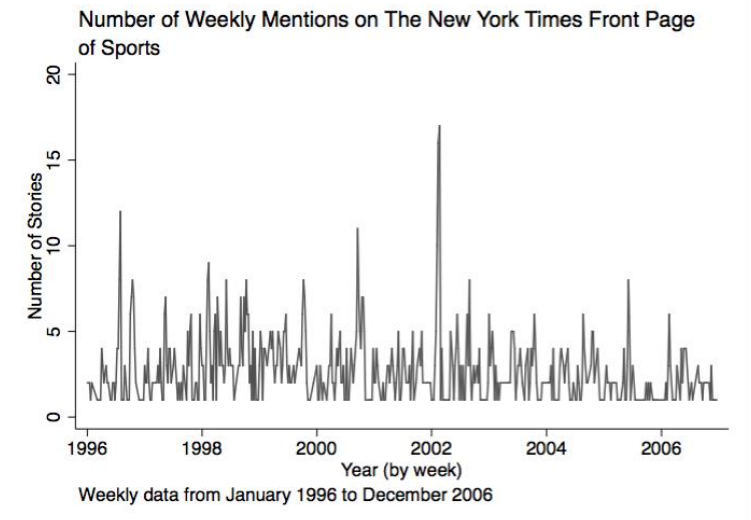


Figure 6.6: Percent Change in Coverage to Sports in Blogs, Twitter, and *The New York Times*

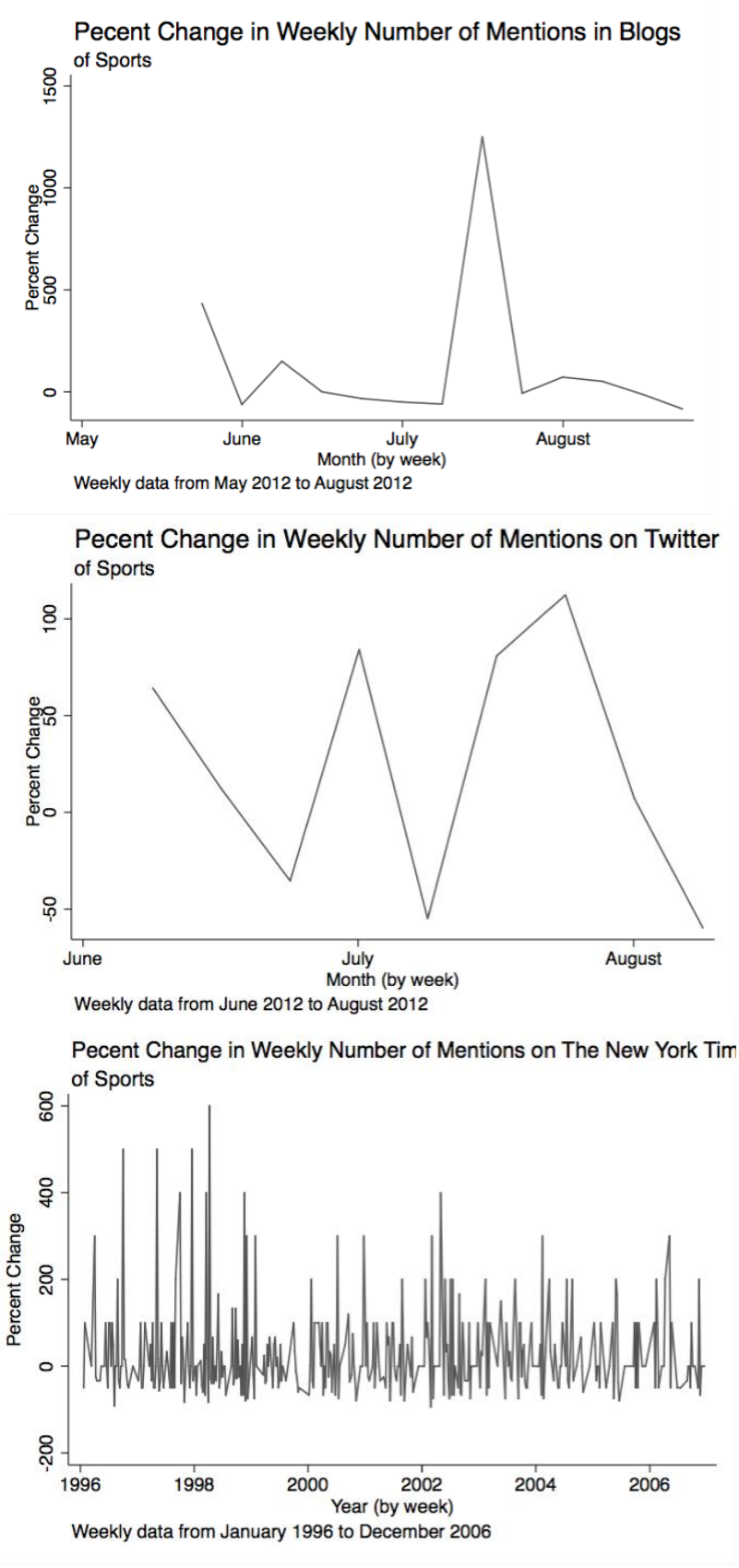


Figure 6.7: Frequency Distribution of the Weekly Percent Change in Coverage in Blogs

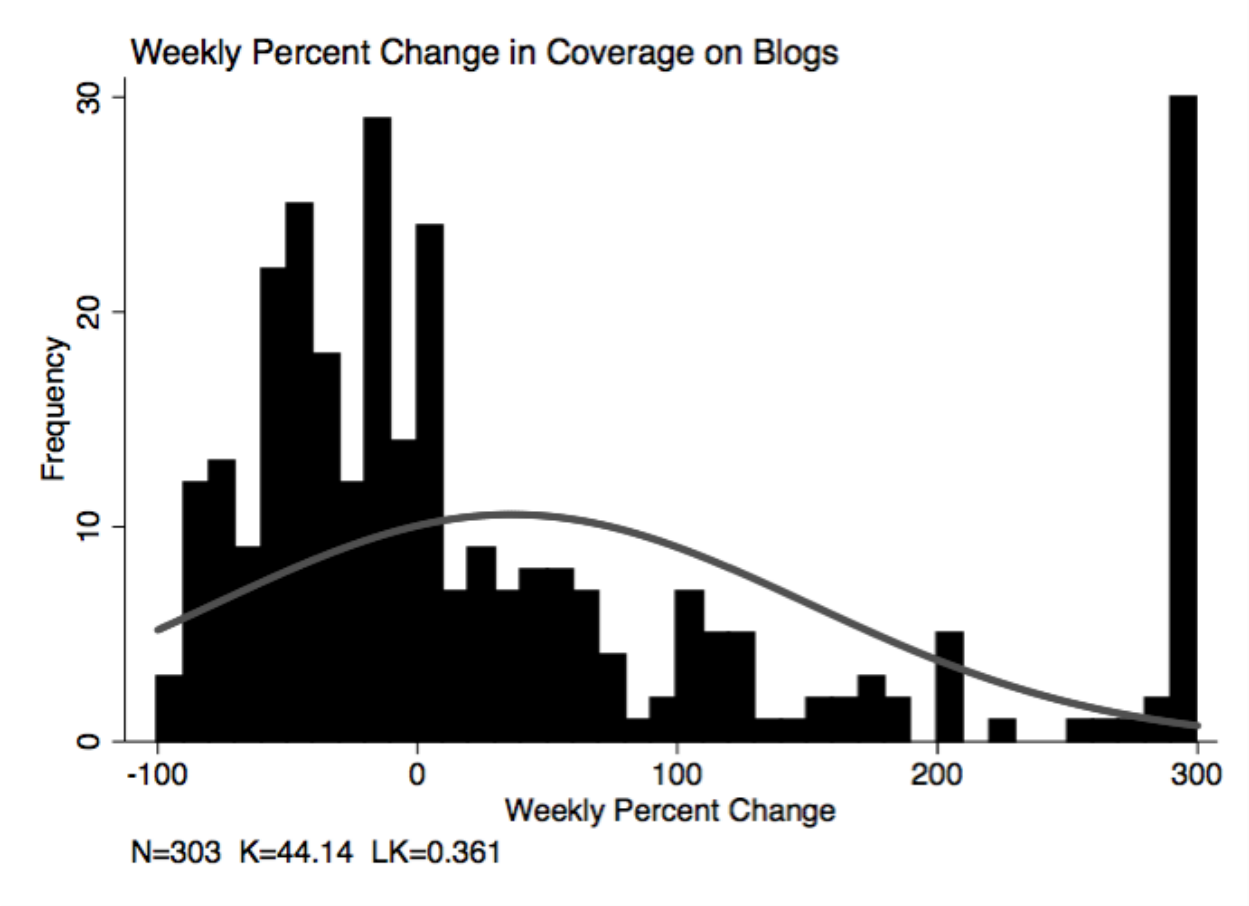


Figure 6.8: Frequency Distribution of the Weekly Percent Change in Coverage in *The New York Times*

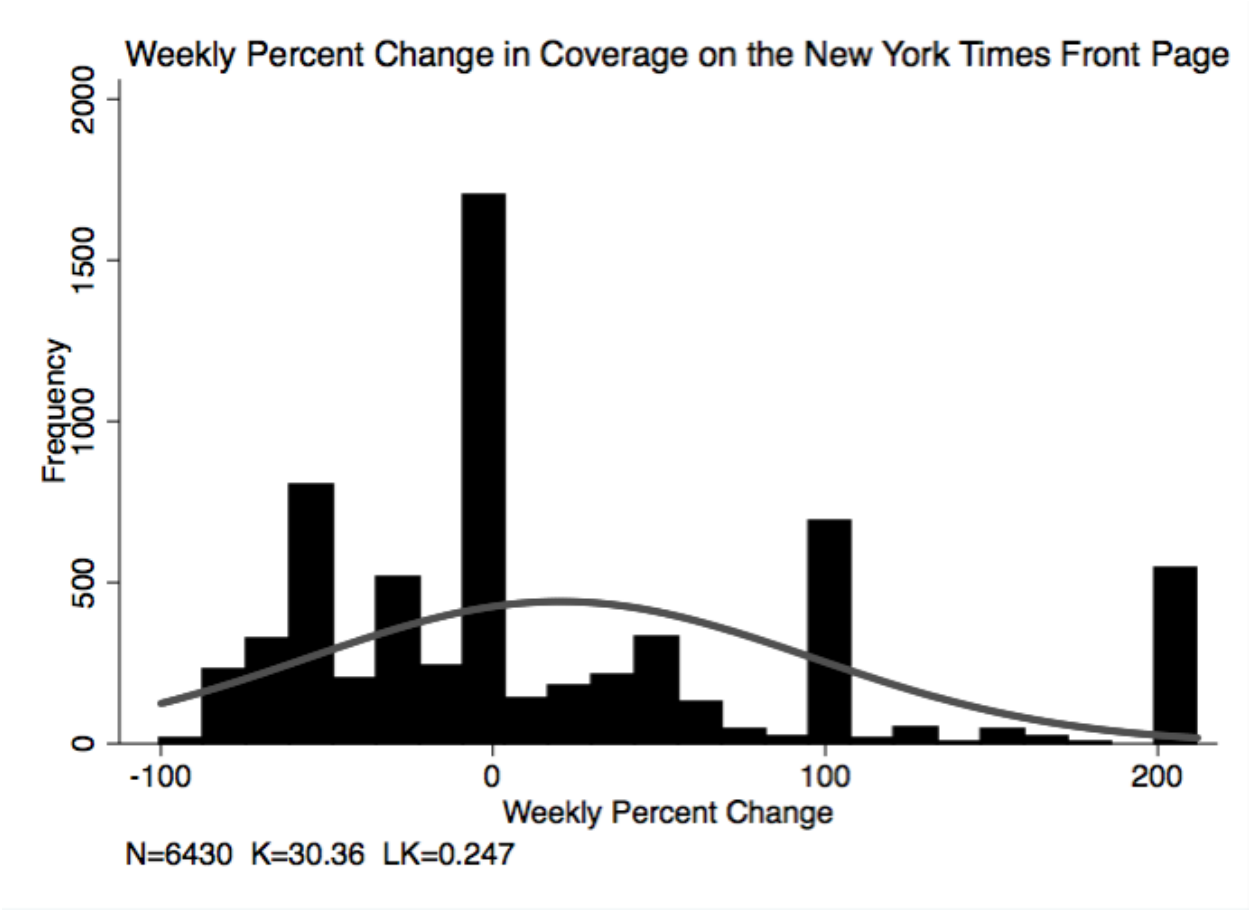


Figure 6.9: Frequency Distribution of the Weekly Percent Change in Coverage on Twitter

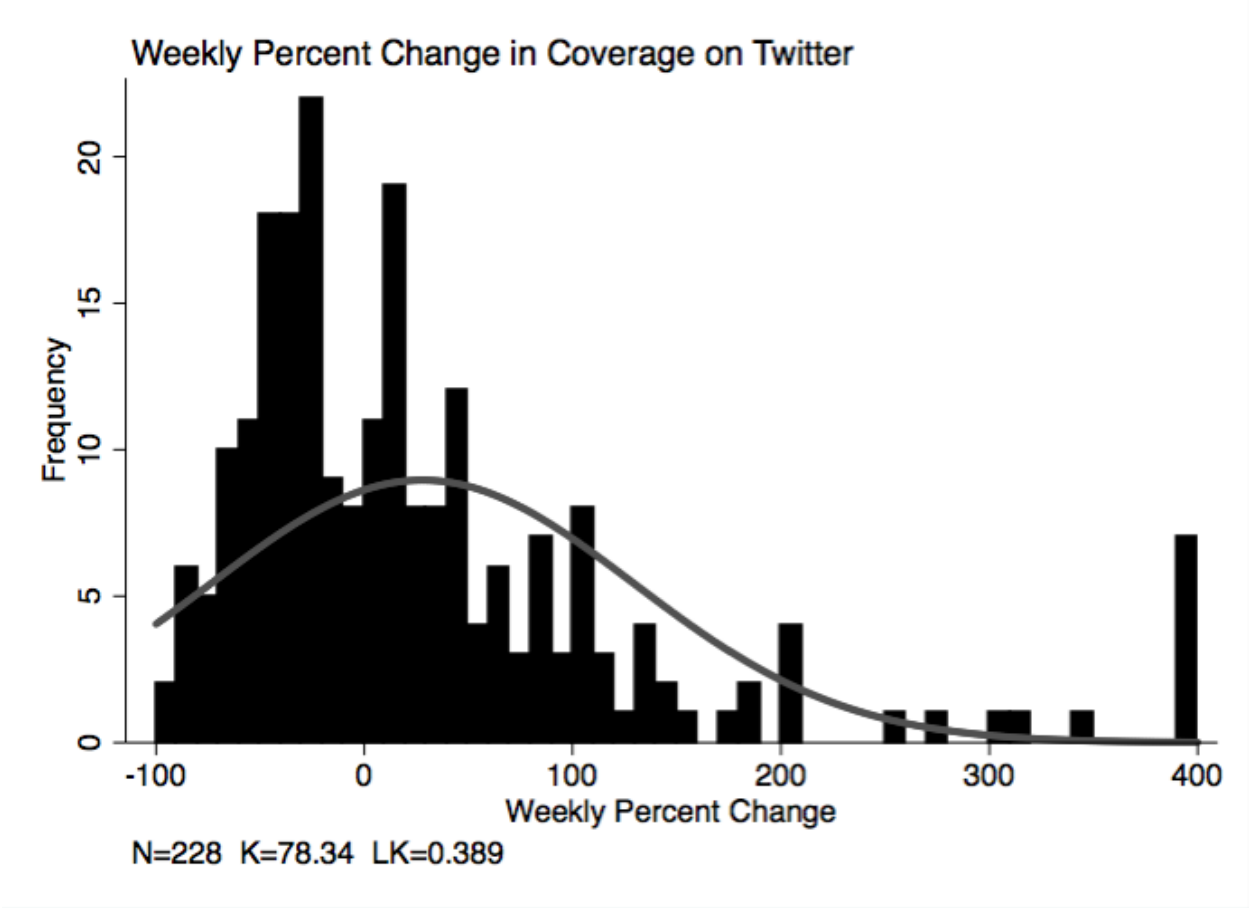
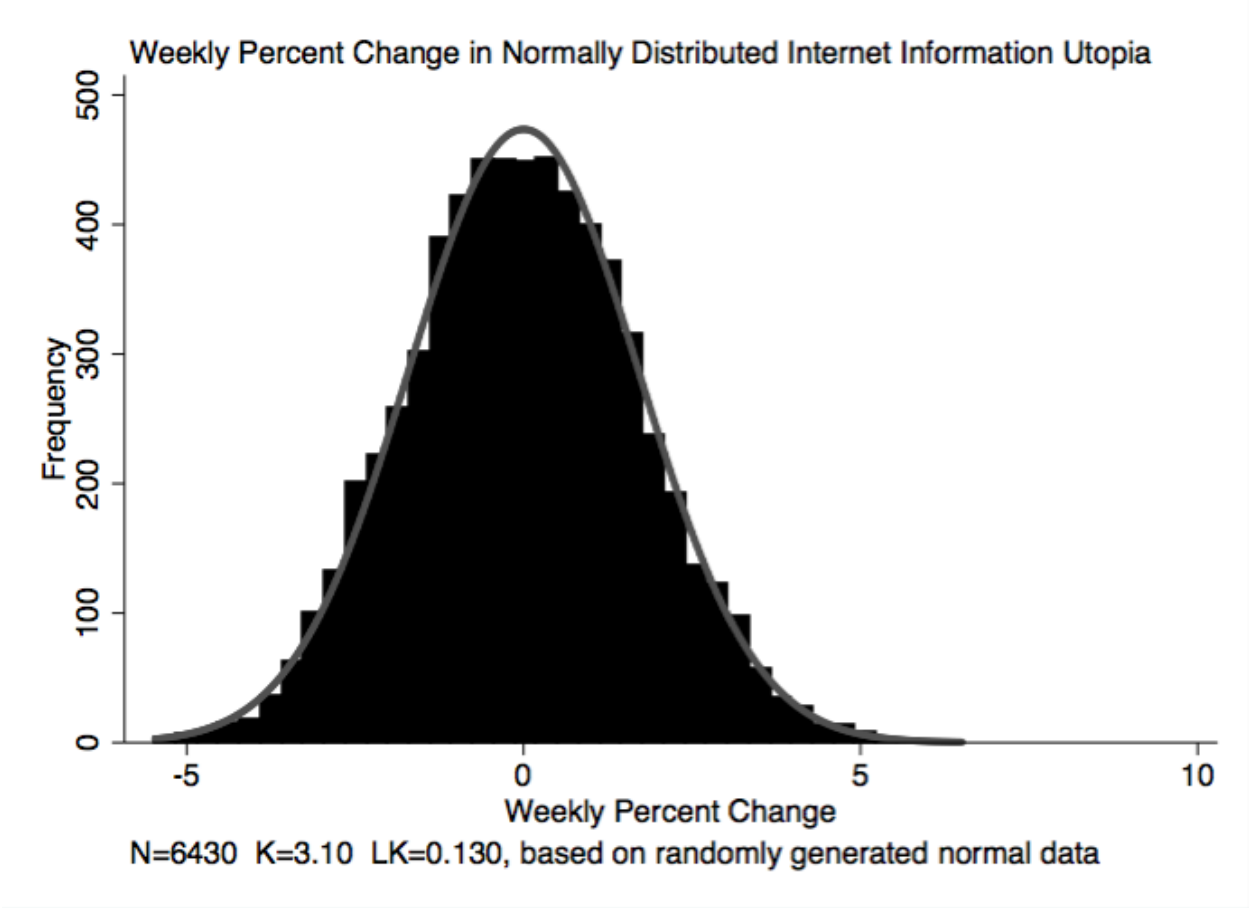


Figure 6.10: Frequency Distribution of Weekly Percent Changes for a Random Normal Distribution Representative of the Internet Utopia



Chapter 7: A New Media or More of the Same?

The Internet might be a vast sea of information but when comparing the new media, in the form of blogs and Twitter, to the mainstay of the traditional media, newspapers, things functionally just are not so different. Though there are subtle differences, sometimes showing the "superiority" of the traditional media and sometimes of the new media, there is not a huge difference in how events, both policy and non-policy are covered. In many ways, the media are the media. Most differences reveal themselves at a micro level. The big, macro picture shows a traditional and new media more similar than would have been predicted in the late 1990s when the Internet was surging onto the scene.

Returning to my original research questions regarding how far society has come in realizing the vision of the Internet utopia, from a media information perspective, I can say with confidence that it has not come very far. This does not mean, however, that all hope is lost. This thesis presents only one of many ways to measure this phenomenon. Just as newspapers have long been valuable political tools both for policymakers and the public, the Internet media can be a platform for change in many of the same ways. And even though macro-level coverage is not so different, there is still much political potential for the Internet to serve. In the remainder of this concluding chapter, I will put into context what these changes mean for the Internet media at large and discuss some scholars' views on the democratic potentials of Internet communication. Then, I will provide suggestions for further research on this topic and close with some parting thoughts.

Summarizing my findings, I found in Chapter 5 that as measured by entropy, the new media are actually slightly less diverse than the traditional media. However, attention within these different media agendas is distributed slightly differently, most notably on Twitter where a high level of non-policy coverage is observed. This coverage also changes over time as I found in Chapter 6. Both the new and traditional media are high friction environments. The traditional media are slightly more explosive than the new media and the changes in attention are a bit more volatile. Despite those subtle differences, though, coverage in the new media most certainly does not shift smoothly over time. Changes are highly punctuated.

Remaining Hopes for the Internet

The Internet still offers significant potential to alter the political landscape around us and it surely has up to this point. Great attention has been given to this topic. Though the results of my study appear relatively static in their findings, there is still a dynamic potential for the Internet that I will attempt to briefly share here.

Coleman and Blumler (2009) suggest that the Internet does offer great democratic potentials and that people seek the diverse array of information available on the Internet. They suggest that the Internet offers people all around the world the ability to form groups, exchange ideas, and mobilize for change (117). They argue that "As media abundance advances, politics intended to inform, reveal, or persuade must vie for the attention of editors, reporters, and audiences in a far more competitive environment" (53). In my own research, Twitter's high percentage of non-policy coverage exemplifies this competitive tendency. Coleman and Blumler also write, "Whichever period the

historians of Internet history might think we are in, it is quite clear that democratic effects are being realised in ways that have little to do with institutional politics" (178).

Pole (2010) is also optimistic about the action-oriented potential of blogs in specific and draws on specific examples of policy success and governmental change that was driven by bloggers. This tendency might not be measured by entropy or kurtosis, but it is very important in establishing context for thinking about the broader implications of my results. Davis (2009) discusses the growth of political blogs. He sees the potential of blogs to affect certain groups of people, at least to small degree (178, 186). However, he also recognizes the very visible and prominent role that blogs have begun to occupy. Davis also provides some broad points that shed light on my overall conclusions. He writes, "Blog content, like traditional media content, is becoming what the audience wants to read. Competition for audience size already shapes the nature of blog content" (188). He also points out the commercial pressures that have begun to affect blogs just like the traditional media (188). My analysis confirms this assertion, but Davis points out that there are still other important political roles for the new media to occupy.

Writing in the early days of the rapid growth of the Internet, Delli Carpini and Keeter (2003) posed a dual-choice view of the future of the Internet. They write, "Whether the emerging information environment will be little more than 'old wine in new bottles,' will further erode the already less than optimal state of civic life or will usher in a new, more participatory citizenry and responsive government remains an open question" (131). In the last decade, we have begun to close in on an answer to this question. Statistically, the Internet media appears to be "old wine in a new bottle." However, this does not preclude other actions on the Internet that concern politics.

Indeed, even in 2003, Delli Carpini and Keeter saw a growth of information on the Internet and observed that young people in particular were accessing this information. They saw that ordinary citizens could play a real role in politics online.

The previous is not an isolated sentiment in the scholarly community. Redden and Witschge (2010) agree. They write: "Our overwhelming conclusion is that there is an abundance of news online, but the content of mainstream news outlets is largely the same" (184). They call this "A startling outcome, in this so-called space of plenty" (184). I too experienced that feeling of surprise when conducting my initial data analysis. Redden and Witschge, like Davis, also see positive possibilities for what the Internet can do especially with the new ways for citizens to respond to and interact with the news they read.

While advances have been made, many of these changes have been inherently unequal (Hindman 2009). Hindman argues that the Internet has given political voice and agency to some, but in an unequal way, and like others, believes that this has resulted in an elite state, especially for bloggers. There are millions of voices to be heard online, but only a few are indeed heard. Those voices are from the elites—the types of bloggers included in my sample. And these elites generally do not represent a diverse cross-section of society. A majority are white males who are highly educated and live in urban areas. As we have seen, this coverage is not all that new. Hindman offers a leveled review of where the Internet lies in American politics. He writes, "the Internet seems to be both good news and bad news for the political voice of the average citizen. The Internet has made campaign financing more inclusive, and allowed broad, diffuse interests to organize more easily. For motivated citizens, vast quantities of information are only a click away"

(142). There is something new in front of us; making this new thing something that all have access to is the next step in making this information really matter and perhaps finally revolutionizing the kind of information available online.

Also, the mere use of digital media sources has links to higher political efficacy and levels of civic engagement. So, even if the information consumed is not different, there may be positive political effects. Gil de Zúñiga, Veenstra, Vraga, and Shah (2010) find that blog readers in particular exhibit high rates of political efficacy. They say that they have located "the emergence of a hybrid participation that combines the virtual and real world realms of political engagement and action—a new digital democracy" (45). This echoes the arguments others have made. To me, this illustrates the idea that regardless of the content, the consumption of online media is related to strong civic engagement. Thus, the Internet, by its very definition, has partially fulfilled some hopes. Jorba and Bimber (2012) agree, arguing, "After years of debate, there is an emerging consensus in the literature that positive though small associations exist between digital media use and certain kinds of civic engagement and political participation" (19). This entire context suggests a world where positive advances have been made despite relatively homogenous coverage. This discussion is not meant to make my results something they are not. I observed significant congruence between coverage in the traditional and new media. However, in placing my findings on the continuum between the Internet utopia and the Internet dystopia presented in the introductory chapter, it's relevant to present alternative perspectives on the Internet media and its potential political effects. Future studies might try to account for these other variables and outcomes.

Suggestions for Further Research

Though my analysis sought to extend other studies of the media performed under the auspices of the Policy Agendas Project to the new media, there are numerous ways that this analysis could be improved and expanded upon. Additionally, there is other research that can and should be done on this topic to further our understanding of the powers of the Internet media. To improve on the analysis in this thesis, data from a greater period of time could be collected and more blogs and Twitter accounts could be included in the datasets. It would be especially interesting to include more personal blogs and Twitter accounts rather than solely the elite ones I focused on. This would allow for conclusions to be drawn about the democratic potentials of the Internet at an individual level. Personal blogs might have great success at sharing diverse opinions (Coleman and Blumler 2009, 87-89). It would also be valuable to have traditional and new media datasets that cover the same time period in order to draw stronger conclusions about inter-media agenda-setting and to best gauge the extent to which the new media is influenced by or influences the traditional media and professional journalists. Given the difficulty in collecting this data using my methods, a keyword search method similar to that used by Lovett and Baumgartner (2012) would be useful. Assuming appropriate access to historical Twitter and blog data, this would be an extremely interesting and valuable point of analysis.

The coding of the datasets I created could also be extended and each blog post or Tweet could be coded with the more specific four-digit Policy Agendas Topic codes or even Boydstun's six-digit topic codes. This would allow for greater specificity in analysis. There is also significant potential for an investigation into how issues are

framed on the Internet versus in the traditional media. Given the highly partisan and ideological nature of many new media sources, interesting findings might arise out of a qualitative analysis of how these different topics are discussed.

As others have done, this data could also be matched up with data on the actions of political institutions like Congress or to public opinion. Again, this research would be concerned with the agenda-setting capabilities of the new media. Similar research could also be conducted on new media platforms in other countries besides the United States. Other research has shown that media agendas (and agendas in general) tend to behave similarly in other countries (particularly those in Europe). Given the spread of new media around the world and the existence of datasets on traditional media sources in a variety of countries, the inclusion of the new media would be powerful in confirming whether the new media also behave similarly across international boundaries.

The Internet is still highly dynamic and rapidly changing. A lot of research on the Internet thus far has concerned the democratic potentials of it and the possible digital divide effects whereby the Internet would be another elite dominated institution where certain people (particularly the poor or elderly) would not have access to information or the ability to participate (see Coleman and Blumler 2009, 32-33). Therefore, it is important to think about who is actually reading the information in the new media? Is it just the wealthy? The highly educated? A representative sample of the population? Karpf (2012b) argues, "Simply put, any benefits from the Internet disproportionately accrue to the already well-off, exacerbating existing inequalities" (95). None of those are probably complete answers, but that underscores my point. It is important to know who is reading this information. Readership surveys for newspapers are highly valuable. Thus,

measuring the amount of consumption of the new media and identifying who is consuming that information are logical next steps in this research agenda. Knowing these things would help to put my, and much other, research on the Internet media in greater context.

Throughout time, studies of political agendas have shown that while often dynamic, agendas are highly predictable. My comparison of the media agendas in both the traditional and new media extends this theory to one more place. Agendas appear to be consistent. My analysis of the diversity and changes in attention of blogs, Twitter, and traditional media sources has confirmed this in several types of media. However, it is important to pay attention as agendas change over time. The agenda of *The New York Times* is not exactly the same today as it was in 1900. The Internet is still a rapidly changing technology. A year from now, much less ten or one hundred years in the future, it will be a very different environment. Additionally, my suggestions for further research stand testament to the possibility that according to other measures, the Internet utopia might be closer to being realized than my analysis indicates. Moving into the future, keeping a watchful eye on the Internet from a political perspective will be a wise choice for scholars of political communication.

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