

# Agenda-Setting and Issue-framing Dynamics in Front-Page News

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Presented at the Annual Meeting of the American Political Science Association  
Philadelphia, PA  
September 1, 2006

## Abstract

This paper marks the first step in a larger project examining the 1) dynamics of agenda-setting, 2) the dynamics of issue-framing, and 3) the relationship between the two. Here, I present the first batch of findings from a new dataset chronicling all front-page stories in the *New York Times* over the last two years (January 2004 through February 2006). Each story is coded by topic category and sub-topic category, according to the Policy Agendas Project coding scheme (Baumgartner and Jones 2006). I structure the paper in four parts. First, I give theoretical discussion of agenda-setting dynamics and issue-framing dynamics in the context of relevant literature. Second, I describe the dataset *NYT* front-page coverage and what these data tell us about which topics have made headline news over the last two years, how these topics vary in the kind and amount of attention they receive, and how attention across and within topics has shifted over time. Common memory of the last two years' of events is sufficient to show that while events clearly matter, they are not the only force driving media attention. Third, I examine agenda-setting dynamics by tracing the number of stories devoted to each topic by week and then analyzing the patterns of change. I find that media attention does not shift gradually between topics from week to week, but moves instead in fits and starts, with changes exhibiting a leptokurtic distribution. This finding supports Baumgartner and Jones' theory of disproportionate information processing – punctuated equilibrium theory – which describes how finite systems such as the public agenda cope with an overload of information not by processing each item steadily in turn but by lurching from one item to another. Fourth, I examine issue-framing dynamics by focusing on the single most dominant sub-topic in the *NYT* front-page dataset: the Iraq War. Each story about the war is coded by “framing dimension” and, as with my analysis of agenda-setting dynamics, I trace the number of stories devoted to each framing dimension by month and then analyze the patterns of change. Again, I find leptokurtic distributions. This finding suggests that issue-framing, like agenda-setting, follows a pattern of disproportionate information processing. I conclude by offering a theory that will inform subsequent parts of this larger project, that *how* a topic is framed strongly determines how *much* attention that topic will receive.

## Introduction

Any given day, the world is faced with thousands of political problems, each of which can be understood or “framed” from several points of view. The result is a cacophony of issues and frames demanding attention from the political system.<sup>1</sup> Attention, however, is limited. Each year the U.S. Supreme Court decides about 150 cases; Congress and the President work to sign approximately 350 bills into law; Americans spend, by most counts, less than 1,000 hours thinking about politics; and the *New York Times* publishes 365 front pages of top news stories. The topics that appear in front-page news and the way these items are framed send important cues to judges, politicians, and citizens alike about which issues and perspectives are important and, by exclusion, which are not. Without being talked about, policy needs have slim chance of garnering public endorsement, financial support, or legislative action. In this way, media attention is scarce currency, one strongly influential in the political system (Cater 1959; Cook 1988; Iyengar & Kinder 1987; Iyengar 1991).

This paper examines how topics at the forefront of public attention, and the frames used to portray those topics, change over time; the dynamics of “agenda-setting” and of “issue-framing.” I propose and then test parallel hypotheses that both issue-framing and agenda-setting follow a pattern of “disproportionate information processing” (DIP). In short, DIP theory predicts long periods of little or no change in the set of issues on the public’s radar screen, or in the set of frames from which a single topic is portrayed. These periods of relative stasis are punctuated by changes so large as to reconfigure the entire agenda or debate; these are the moments of agenda overhaul and issue redefinition. While the theory of disproportionate information processing is established in the agenda-setting literature (e.g., Jones & Baumgartner 2005), the theory has never been tested – as I do here – across multiple policy topics sampled over time. This paper is also the first work to extend the disproportionate information processing theory to the framing process, offering a new

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<sup>1</sup> Although I differentiate between “topics,” “sub-topics,” and “issues” for the purposes of my coding scheme, I use the terms “topic” and “issue” interchangeably throughout this paper.

theory of issue-framing dynamics. As with limited agenda space, finite capacity in the “frame-space” of a policy topic – combined with social attention cascades – produce a DIP pattern of framing dynamics, in which long periods of minor incremental shifts in the framing of an issue debate give way to sudden, dramatic instances of reframing.

To test my hypotheses, I am in the process of creating two original datasets: an Issues Dataset, showing the rise and fall of different topics on the *NYT* front page over time; and a Frames Dataset, showing the rise and fall of different frames within key topic debates. The Issues Dataset is constructed by examining every article on the front page of the *New York Times* and coding each article by policy topic and sub-topic in accordance with Baumgartner and Jones’ Policy Agendas Topic Codebook (2006). Here, I present results from the most recent two years of data (approximately 5,400 articles collected from January 2004 through February 2006), but soon this dataset will extend back ten years, comprising some 20,000 stories. I use this data to analyze media attention dynamics, testing the theory that agenda-setting follows a DIP pattern. I construct the Frames Dataset by examining those articles focused on a single topic of interest (specifically, the five issues to rank highest in attention over the span of the Issues Dataset), coding each article by frame dimension. In this paper, I analyze framing of the Iraq War as the first topic collected in the Frames Dataset. Eventually, this dataset will consist of this issue and additional issues coded using a more detailed framing scheme than that presented here.

I proceed in four stages. First, I describe in greater detail the theory of disproportionate information processing and how it relates to the processes of agenda-setting and issue-framing. Second, I give an overview of the Frames Dataset and the big-picture story it tells: over the last two years, which issues got attention, which issues got which *kind* of attention, and how attention across and within topics has changed. Third, I use the Issues Dataset to test the hypothesis that agenda-setting dynamics follow a pattern of disproportionate information processing. Fourth, I use the Iraq War to test the hypothesis that issue-framing dynamics follow the same pattern. In all, the

results support my hypotheses. Both agenda-setting and issue-framing exhibit patterns of punctuated equilibrium, and I argue that these parallel dynamics are no accident. In fact, I suggest that changes in issue-framing drive changes in agenda-setting. Topics framed in new ways get more attention than topics framed using the status quo dimension of debate. Although events certainly inform news coverage, issue-framing also plays a key role in determining which issues get headline news and which get buried behind the want-ads (or not printed at all).

## **Part I. Agenda-Setting, Issue-framing, and DIP Theory**

“Agenda-setting” is the process by which policy issues (e.g., prescription drug benefits, political corruption, Hurricane Katrina) gain position on the public or political agenda while others (e.g., farming subsidies, schizophrenia, third world genocides) go comparatively unnoticed.<sup>2</sup> “Issue-framing,” similarly, is the process by which the definition of an issue is crafted using a particular frame at the neglect of alternate frames.<sup>3</sup> I argue that agenda-setting and issue-framing are parallel and mutually-influential processes, both centered in the division of a finite currency of attention. The driving element of agenda-setting is that there are more problems in the world than can fit onto any single agenda. And at the nexus of issue-framing lies the multidimensional nature of issues; there are always multiple points of view, more than can fit into any single description, or “frame-space” of a problem. Which issues achieve agenda status determine the parameters of political debate. Which dimensions are used to frame a given issue determine the form and substance of that issue debate.

E. E. Schattschneider laid the theoretical groundwork for studies of agenda-setting and issue-framing with the concept of “conflict displacement”: the redistribution of political attention or resources from the status quo to a new division of debate (1960). Consider the “pie” of space on a

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<sup>2</sup> An “agenda” is any venue of attention. Examples of political agendas at the national level include the set of legislative topics discussed in Congress, the set of judicial topics reviewed by the Supreme Court, and – as studied here – the policy topics reported in front-page news.

<sup>3</sup> For my purposes, I define a “frame” as a dimension of evaluation (e.g., cost, legality, morality) that serves as the basis of reference through which to define a given topic debate.

given agenda. In essence, agenda-setting is the process of slicing this pie along changing division lines; (re)distributing the currency of attention across a few favored topics selected from the larger population of topics. Within each topic debate, there is a separate “pie” of frame-space, such as the number of words or inches allotted a news article. Issue-framing is the process of slicing this pie along changing division lines; (re)distributing the currency of attention across favored frames selected from all the dimensions of evaluation that could define the topic. Often, an issue debate focuses on one frame for a period of time but shifts later to a different frame. In the 1950s, for example, nuclear power was described as a matter of scientific advancement: the “atoms for peace” frame. By the 1960s, it had been reframed in terms of environmental danger, health risk, and military arms proliferation (Baumgartner & Jones, 1993).

“The definition of the alternatives,” Schattschneider writes, “is the supreme instrument of power” (1960). Indeed, studies of agenda-setting and issue-framing are investigations of influence. In agenda-setting, power is wielded by limiting the scope of the political agenda “to public consideration of only those topics which are comparatively innocuous” to members of a particular group (Bachrach & Baratz 1962). In issue-framing, power is exercised by limiting definition and discussion of an issue to a set of dimensions advantageous to a particular interest. In both cases, the mechanism at work narrows the universe of problems and arguments to a favored perspective. Time and again, research demonstrates that both agenda-setting and issue-framing have significant influence on the political system (on the effects of agenda-setting: Caldeira & Wright 1988; Gaventa 1980; Flemming, Wood, & Bohte 1999, Riker 1982; Wood & Peake 1998; on the effects of issue-framing: Jacoby 2000; Nelson, Clawson, & Oxley 1997; Nelson & Oxley 1999; Pollock 1994; Terkildsen & Schnell 1997; Tversky & Kahneman 1986; importantly, on the limits of framing effects: Druckman 2001a-d, Druckman & Nelson 2003).

How, then, do these processes work? Past research shows agenda-setting to be a complex and stochastic process. Whether or not an issue gains position on an agenda is driven by several

variables, including: events, the availability of feasible solutions, the level of “competition” among topics, the level of public outcry, reigning partisan and coalition control, the amount of political clout pushing that topic to the forefront of attention, not a small bit of chance, and – last but not least – the frame used to define the problem. Critical junctures in these variables are what enable the agenda to change (Carmines & Stimson 1989; Carpenter 2002; Cobb & Elder 1972; Cohen, March, & Olsen 1972; Downs 1972; Kingdon 1984; Pierson 2000; Walker 1977; Zahariadis 1999).

Issue-framing is a key influence in the agenda-setting process. In general, the public does not respond to real-world problems themselves so much as to the collective *definitions* society adopts for those problems (Best 1995; Blumer 1971; Hilgartner & Bosk 1988; Spector & Kitsuse 1973 & 1977). As Kingdon puts it, “conditions become defined as problems when we come to believe that we should do something about them” (1995). Depending on events and political circumstances, a topic defined as “important” today will not necessarily be so tomorrow. What matters is whether or not an issue is important *enough*, compared to all other issues, to pass a “threshold of urgency,” as defined by the agenda’s capacity (Jones & Baumgartner 2005). Issue-framing is a mechanism able to propel an issue above this threshold of urgency (Cobb & Elder 1972; Kingdon 1995; Baumgartner & Jones 1993 and 2002). Whether through framing or another means, the rise of an issue beyond a threshold of urgency is usually ushered by a fad-like wave of popularity; a social “cascade” in the nature of fashion trends, stock market crashes, residential segregation, and collective action (Jones & Baumgartner 2005).

I argue that issue-framing is an equally complex process. Whether or not a particular frame gains a place in the frame-space of an issue is driven by several variables, including: events, the public’s receptivity to the frame, how compelling and exciting the frame is (e.g., its “shock-value”), the level of “competition” among frames, whether the frame reinforces or displaces the status quo framing dimension, the amount of political clout pushing that frame to the forefront of attention, and (again) not a small bit of chance (Wood & Doan 2003; Baumgartner et al. 2005). Although

these variables can combine in multiple ways to advance a frame onto an issue's frame-space, social cascades are the most likely vehicles for reframing an issue debate.

In short, finite agenda and frame-space capacities, topic and frame "competition," and the human need for sustained drama inhibit all but the most compelling topics and frames from gaining position on a given agenda or frame-space. The result is that, most of the time, most topics and frames fall below the radar of political leadership and news media alike, attended to within smaller venues of attention and specialized policy communities (Carmines & Stimson 1986; Downs 1972; Jones & Baumgartner 2005). In terms of dynamics, agenda-setting and issue-framing should generally display patterns of relative stasis, demonstrating only small, incremental change. Yet every once in a while, when an issue makes it on the agenda or a frame finds position in an issue's frame space – usually on the seat of a social cascade – the political system must respond. The previous period of equilibrium is punctuated with dramatic change: a massive overhaul of the agenda or a radical reframing of a policy debate. In the agenda-setting literature, this patterned process is called "Disproportionate Information Processing" (DIP) (Jones & Baumgartner 2005; Jordan 2003; True, Jones, & Baumgartner 1999).

Jones and Baumgartner posit that, *since* there are thousands of trends, activities, events, and situations that affect government, *and* these trends, activities, etc. are governed by hundreds or even thousands of different processes (not all of which are related to each other), *then* changes in the severity of these different items will be Normally distributed. In other words, since the information that must be filtered through the public agenda-setting process has such a high  $N$ , the distribution of agenda input is necessarily Normal, by virtue of the Central Limit Theorem. If the agenda-setting process operates such that responses to incoming information are timely and proportional, then change in each system over time should be likewise Normal, and a histogram of these changes should show the smooth curves of incremental movement. However, if the DIP theory is correct, the distribution would be "leptokurtic" instead. In place of steady sloping shoulders leading to a

smooth and rounded peak, a leptokurtic distribution has a tall, thin, and pointed middle peak, with weak shoulders and simultaneously large tails—many more observations at either extreme than in a Normal curve with similar variance. The tall middle peak holds the vast bulk of observations: all the time periods during which there was little or no change in the system. The shoulders drop away so dramatically on either side of the peak because, in a process governed by DIP, there is a paucity of moderate change. At the tail ends, clusters of observations reflect the rare but explosive punctuations in the system. In addition to visual analysis of the distribution, a simple kurtosis test shows whether the set of changes is leptokurtic, defined as kurtosis values that exceed three ( $k > 3$ ).

I theorize that both issue-framing and agenda-setting dynamics are governed by disproportionate information processing. My test of this theory will provide the first direct analysis of issue-framing dynamics. Additionally, although empirical support for the DIP theory in the context of agenda-setting already exists, I offer the first test of this theory across multiple, specific policy topics sampled over time. Explicitly:

**Hypothesis 1:** *The frequency distribution of agenda changes (i.e. shifts in the division of attention across topics between subsequent time periods) will reach significant levels of leptokurtosis, supporting DIP theory.*

**Hypothesis 2:** *The frequency distribution of frame changes (i.e. in a single topic debate, shifts in the division of attention across frame dimensions between subsequent time periods) will reach significant levels of leptokurtosis, supporting DIP theory.*

## **Part II. Issues Dataset: A Look at the Front-Page Agenda**

There are many agendas in the political spectrum, but for feasibility this project will focus on the national public agenda as represented by the front page of the *NYT*.<sup>4</sup> A trained coder reads the headline and first three paragraphs of each article, then assigns the article a 6-digit identifier code using the topic codes (first two digits) and subtopic codes (next two digits) from Baumgartner and

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<sup>4</sup> The use of the *Times* as an adequate proxy of national news coverage has been well documented (e.g., Woolley 2000; Althaus, Edy and Phalen 2001; Soroka 2002).

Jones’ Policy Agendas Project, as well as issue-specific codes (last two digits).<sup>5</sup> For example, if the first article coded reports on school vouchers, the policy identifier would be 060201 (Education 06, Elementary and Secondary Education 02, and Vouchers 01). Subsequent articles on school vouchers would receive this same code. The next article to deal with an issue of elementary and secondary education (e.g., high school dropout prevention) would be coded 060202. In this way, the coding process gives a unique identifier to all stories on the same issue.

In this section, I give a broad overview of front-page *NYT* media attention during the past two years: which topics have dominated the agenda, how topics vary in the kind of attention they receive, and how attention across and within topics has shifted over time. My aim is to familiarize the reader with this new dataset, laying context for my analysis of agenda-setting dynamics. Many of the findings presented here are intuitive; others may be surprising. Together, these results offer richer insight into the substance and dynamics of the public agenda than afforded by previous work.

Table 1 shows summary statistics for the 27 topic categories in the Topics Dataset (i.e., coded at the 2-digit level), collapsed by week and presented in order of the total counts on each topic between January, 2004 and February, 2006. This table illustrates variance in topic “type”, from mega topics that dominate the debate to important but strangely unnoticed topics receiving almost no front-page coverage. I will discuss each topic type in turn.

**Table 1: 2-Digit Topics with Summary Statistics by Week**

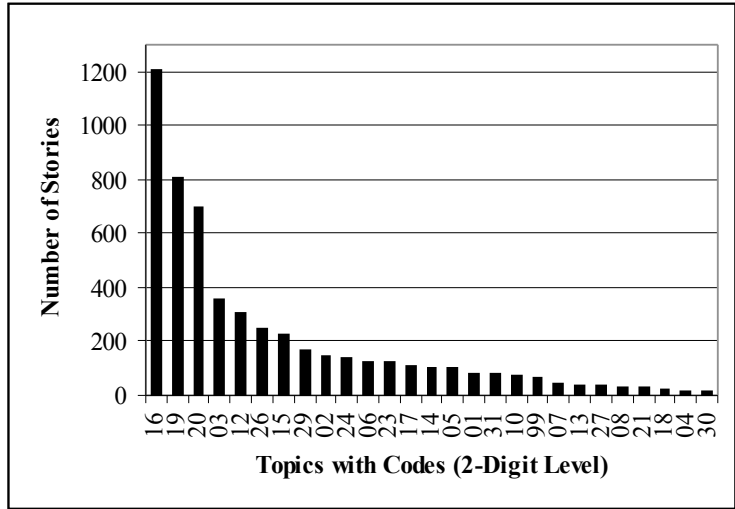
| <b>Topic</b>                                       | <b>Weekly Mean</b> | <b>Weekly Std. Dev.</b> | <b>Weekly Min</b> | <b>Weekly Max</b> | <b>Total Count, Jan04 - Feb06</b> |
|--|--------------------|-------------------------|-------------------|-------------------|-----------------------------------|
| 16. Defense  | 10.7               | 4.69                    | 1                 | 25                | 1204                              |
| 19. International Affairs and Foreign Aid          | 7.2                | 3.41                    | 1                 | 18                | 809                               |
| 20. Government Operations                          | 6.1                | 4.96                    | 0                 | 22                | 694                               |
| 03. Health   | 3.1                | 1.99                    | 0                 | 9                 | 355                               |
| 12. Law, Crime, and Family Topics                  | 2.7                | 2.23                    | 0                 | 12                | 307                               |
| 26. Weather and Natural Disasters                  | 2.2                | 4.82                    | 0                 | 31                | 248                               |
| 15. Banking, Finance, and Domestic Commerce        | 2.0                | 1.59                    | 0                 | 7                 | 226                               |
| 29. Sports and Recreation                          | 1.5                | 1.51                    | 0                 | 7                 | 165                               |
| 02. Civil Rights, Minority Topics, Civil Liberties | 1.3                | 1.25                    | 0                 | 5                 | 147                               |
| 24. State and Local Government Administration      | 1.2                | 1.38                    | 0                 | 7                 | 136                               |

<sup>5</sup> Data is being collected for the last ten years (approximately 20,000 articles from 1996 to present), but presented here are the collected data from January 2004 through February, 2006, at the 2-digit and 4-digit levels of analysis only.

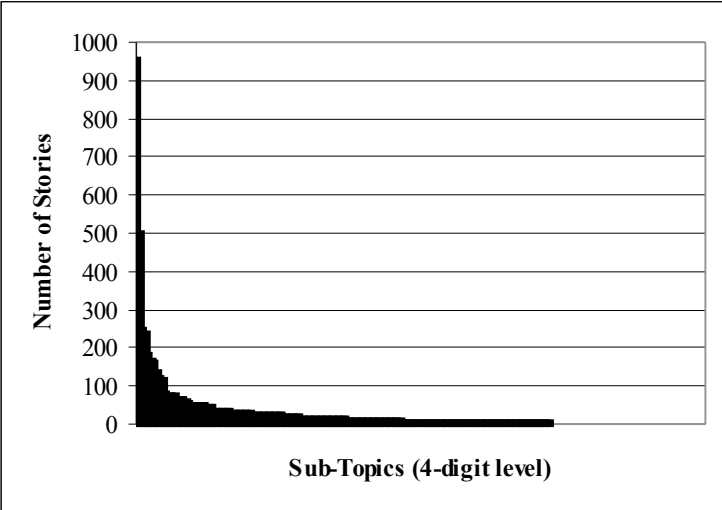
|  |     |      |   |    |     |
|--|-----|------|---|----|-----|
| 06. Education                                  | 1.1 | 0.99 | 0 | 4  | 122 |
| 23. Culture and Entertainment                  | 1.1 | 1.25 | 0 | 6  | 122 |
| 17. Space, Science, Technology, Communications | 1.0 | 1.16 | 0 | 6  | 110 |
| 14. Community Development and Housing Topics   | 0.9 | 1.07 | 0 | 5  | 105 |
| 05. Labor, Employment, Immigration             | 0.9 | 1.57 | 0 | 12 | 104 |
| 01. Macroeconomics                             | 0.7 | 0.90 | 0 | 4  | 79  |
| 31. Churches and Religion                      | 0.7 | 1.65 | 0 | 14 | 78  |
| 10. Transportation                             | 0.7 | 0.78 | 0 | 3  | 76  |
| 99. Other, Miscellaneous, Human Interest       | 0.6 | 0.81 | 0 | 3  | 65  |
| 07. Environment                                | 0.4 | 0.59 | 0 | 3  | 42  |
| 13. Social Welfare                             | 0.3 | 0.82 | 0 | 6  | 35  |
| 27. Fires                                      | 0.3 | 0.65 | 0 | 3  | 33  |
| 08. Energy                                     | 0.3 | 0.48 | 0 | 2  | 30  |
| 21. Public Lands and Water Management          | 0.3 | 0.56 | 0 | 3  | 29  |
| 18. Foreign Trade                              | 0.2 | 0.46 | 0 | 2  | 19  |
| 04. Agriculture                                | 0.1 | 0.33 | 0 | 1  | 14  |
| 30. Death Notices                              | 0.1 | 0.35 | 0 | 2  | 13  |

The topics of Defense, International Affairs, and Government Operations dominate the Issues Dataset for the last two years. Spanning 26 months of time, this section of the dataset represents 789 front pages of news coverage. So the fact that Government Operations received 694 stories during tells us that, on average over the last two years, there was an article about this topic on nearly every front page. One story a day is a lot, especially considering that a *NYT* front page can only accommodate about six articles. These three dominant topics are unusual; as illustrated in Figure 1, most of the other 23 topics received substantially less attention during this time period. Figure 2 demonstrates the same point, this time examining attention at the sub-topic level.

**Figure 1: Number of Front-Page Stories Per Topic (2-Digit Level)**



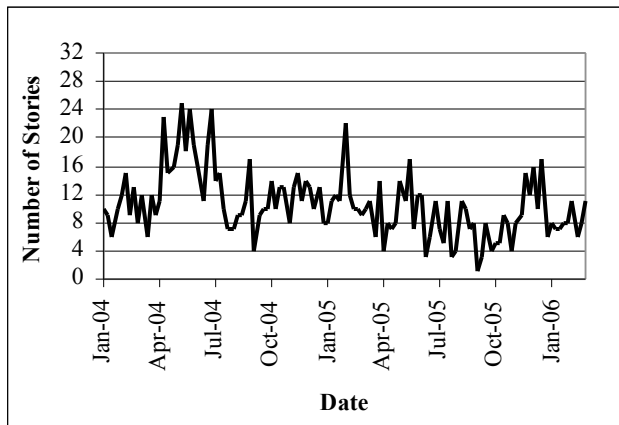
**Figure 2: Number of Front-Page Stories Per Sub-Topic (4-Digit Level)**



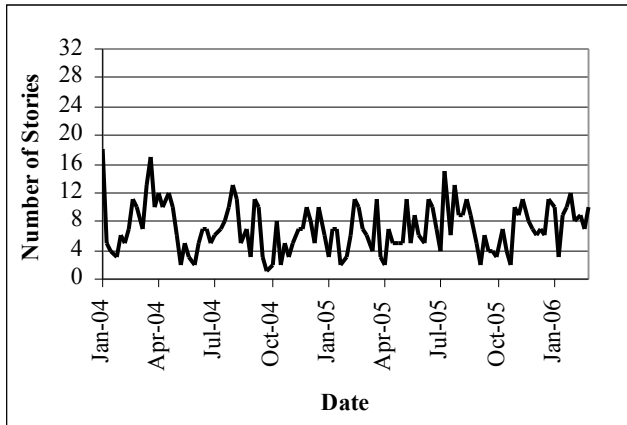
With 1204 stories, Defense is particularly gigantic, as Figure 3 shows. Unsurprisingly, the Iraq War (subtopic code 1619) is responsible for the vast majority of this attention. Although not every front page during this time carried war coverage, front pages were often saturated with two, three, four, or even more stories about the conflict. As Figure 13 later shows, attention to Defense has slowly declined over the last two years, but never below an average of an article a day.

Figure 4 shows that attention to International Affairs was more constant during this period – holding steady around 7 articles per week. When the dataset is extended through 2006, of course, there will undoubtedly be a spike in attention to this topic – specifically, to the Middle East subtopic 1920 – reflecting the most recent Lebanese/Israeli engagement.

**Figure 3: Topic 16 (Defense)**

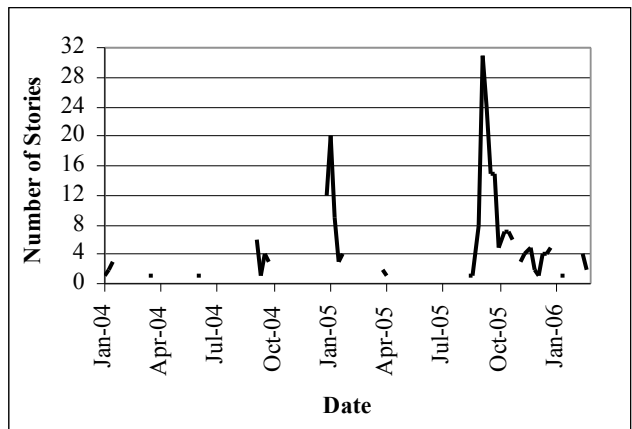
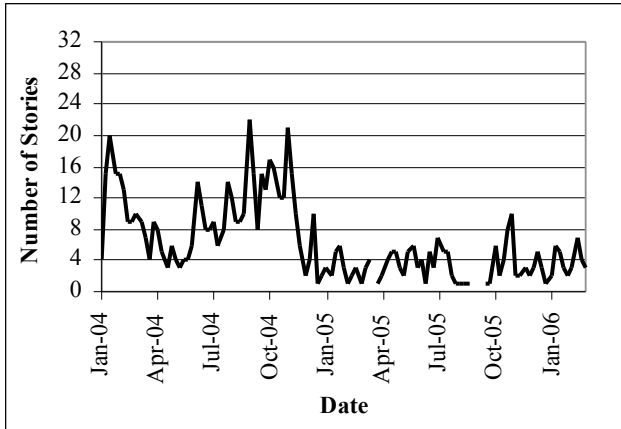


**Figure 4: Topic 19 (International Affairs)**



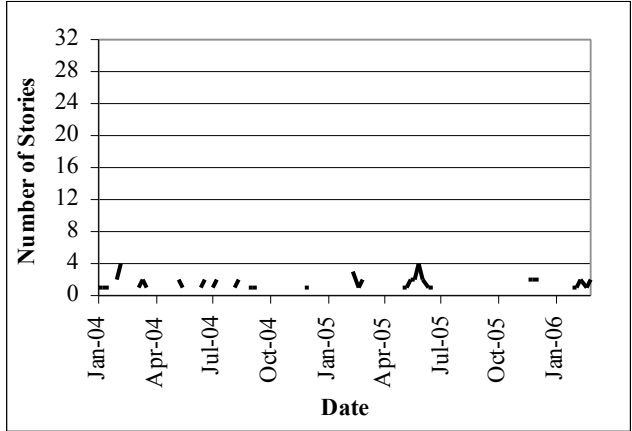
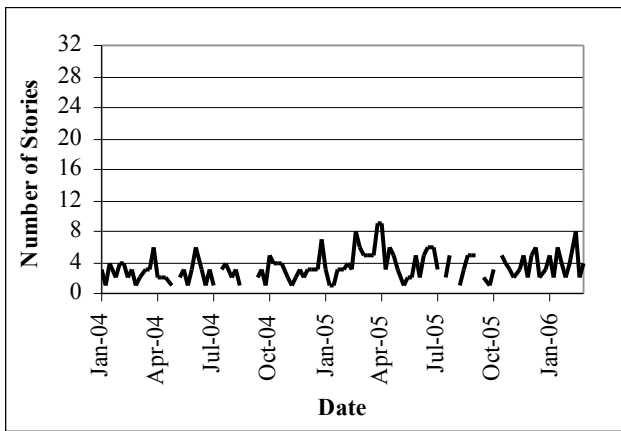
**Figure 5: Topic 20 (Government)**

**Figure 6: Topic 26 (Weather and Disasters)**



**Figure 7: Topic 03 (Health)**

**Figure 8: Topic 01 (Macroeconomics)**



The topic of Government Operations, as shown in Figure 5, offers a perfect example of seasonal dynamics. This Figure shows that, while Government Operations always have a place on the agenda, there is a telltale spike preceding the November 2004 elections. When this Topics Dataset is extended, similar spikes should be apparent each fall of even-numbered years, with particularly large amounts of coverage surrounding the Presidential elections every four years.

As may be expected, the Weather and Natural Disasters topic is not a mainstay on the public agenda, but when attention turns to this topic it does so in force. The first spike of coverage shown in Figure 6, beginning in late December, 2005, corresponds with the Indian Ocean earthquake and resulting tsunamis across South and Southeast Asia. The second, much larger, spike at the end of August, 2005 reflects attention to Hurricane Katrina.

The “bread and butter” topics of Health (shown in Figure 7) and Law/Crime each held a more modest – though still significant – presence on the agenda over the last two years. Although the total counts for these two topics are more modest than for the three giant topics discussed above, still Health and Law/Crime each received an average of about one front-page story every other day.

Finally, Figure 8 shows attention to Macroeconomics as indicative of like topics (e.g., Environment and Social Welfare) that, although undeniably important, received only minimal attention. While strong attention to mega-topics like Defense and International Affairs is to be expected, still I for one am surprised by the low attention to Macroeconomics, Environment, and Social Welfare. These findings indicate that the public may not be receiving the kind of economic cues – at least at the top level of headline news – that public opinion scholars often take for granted.

In all, these data illustrate the multi-faceted news generation process. While front-page attention is clearly driven by events, other variables – issue-framing key among them – are also at work. In other words, the occurrence of an event is a necessary but insufficient prerequisite for media attention. Often news coverage tracks events with predictable magnitude, such as the spike in attention to Government during the 2004 elections. At other times, an event receives an amount

of attention out of proportion with the “objective” importance of that event, either receiving more or less attention than might be warranted, relative to larger trends. The OJ Simpson car chase and trial, the debate over whether to remove Terri Schiavo’s feeding tube, and the ongoing JonBenet Ramsey murder investigation are all examples of sensationalized cases that received more attention than another event, of the same variety but in different circumstances, would be likely to receive. At the other end of this spectrum, the humanitarian crisis in the Sudan stands as an unfortunate example of events that receive relatively little attention in comparison with their vast “objective” significance. Of course, objective values are impossible to articulate, even more so to quantify. As noted above, front-page coverage of Hurricane Katrina (resulting in almost 2,000 deaths) peaked at over 30 front-page stories in a single week. The series of tsunamis in South and Southeast Asia in 2004 killed nearly 100 times as many people, but received only two-thirds as many front-page stories at the height of its coverage. No one could say that Hurricane Katrina did not warrant each and every story it received – indeed, many would argue that media attention fell too quickly away once excitement of the disaster grew cold – but this contrast between coverage of Katrina and of the tsunamis demonstrates how facts and events are only part of what determines media attention.

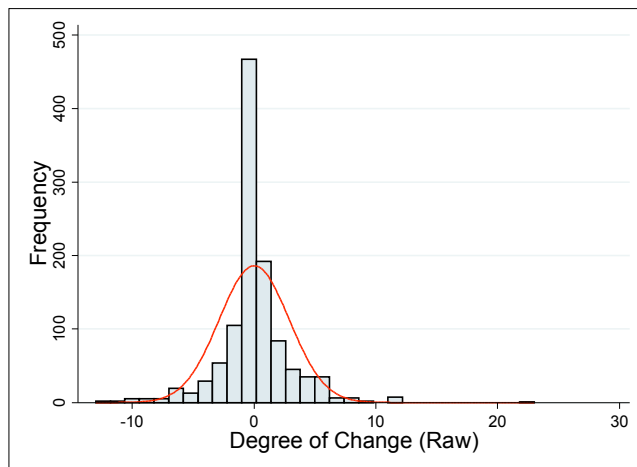
### **Part III. Agenda-Setting Dynamics across All Topics**

I use the Topics Dataset described above to test Hypothesis 1, that agenda-setting dynamics follows a pattern of DIP. To analyze this data, I begin by producing a single “Count Series” for each of the 27 major topics, as the aggregate number of articles appearing on that topic by week. Next, I calculate a “Raw Count Change Series” for each topic by subtracting the number of articles in a week,  $w$ , from the number in the previous week,  $w-1$  from within the Count Series. For example, if 4 articles were written on the topic of Defense in the first week of 2004, then 3, 5, and 5 in the second, third, and fourth weeks respectively, the Raw Count Change Series for weeks three through five would be:  $w_2 = -1$ ,  $w_3 = 2$ , and  $w_4 = 0$ . For added validity, I repeat this last step again, this time

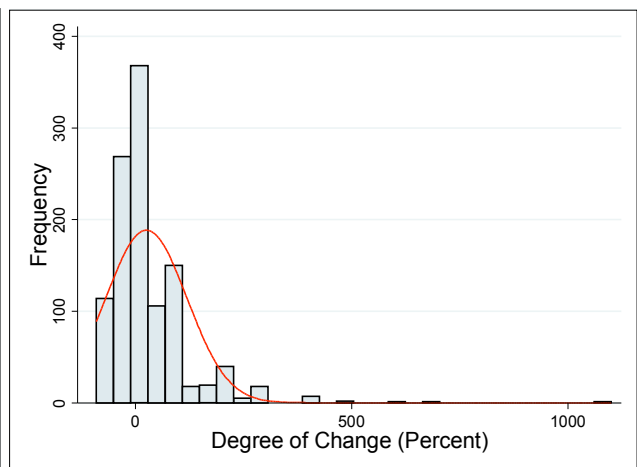
calculating the Change Series not as raw counts of the number of story increases and decreases, but as the percentages of change, relative to the initial values. So a Count Series of 4, 3, 5, 5 in weeks one through four would yield the following Percentage Change Series:  $w_2 = -25\%$ ,  $w_3 = 67\%$ , and  $w_4 = 0\%$ . Finally, I test Hypothesis 1 by compiling first the Raw Count Change Series and then the Percentage Change Series for all topics and then calculating the kurtosis score of each compiled series, expecting to see a kurtosis score of  $k > 3$ . The null hypothesis is that the distribution of changes in the agenda over time will be Normally distributed, showing a kurtosis value of  $k = 3$ .

The results support the alternate hypothesis that agenda-setting dynamics display a punctuated equilibrium pattern. The compiled Raw Count Change Series produces a kurtosis value of 9.68, significantly above the  $k = 3$  Normal threshold. The compiled Percentage Change Series yields a kurtosis score of 23.74, signifying an even stronger leptokurtic distribution. In order to avoid possible inflation, I also re-calculate these kurtosis scores after dropping all zeroes from the Change Series. With all zeroes removed, the compiled Raw Count Change Series has a kurtosis score of 6.99, and the compiled Percentage Change Series has a kurtosis value of 17.22.

**Figure 9: Dist. of Attention Change (Raw)**



**Figure 10: Dist. of Attention Change (Pct)**



Figures 9 and 10 show histograms of the Raw Count Change Series and Percentage Change Series, respectively. Both figures are overlaid with a Normal distribution curve drawn from the same mean and standard deviation as the data. The tall and slender central peak characteristic of a leptokurtic distribution is visible in each figure, as are the weak shoulders on either side, indicating a predominance of little or no change; these are the periods of equilibrium. Close examination reveals small but important clusters of observations at both tails (the x-axes are set to accommodate the farthest outliers); these are the punctuations, those rare instances of dramatic change.

#### **Part IV. Issue-Framing Dynamics in Coverage of the Iraq War**

The Frames Dataset, still under construction, is compiled by downloading the full-text of each article corresponding with a sub-topic of interest, then identifying the primary frame employed in each text. When completed, the Frames Dataset will encompass the five most prominent sub-topics listed in the Topics Dataset. Here, I analyze framing of the Iraq War; with 930 stories the war is by far the most dominant sub-topic in the Topics Dataset thus far (Jan-04 to Feb-06). A trained coder coded each article by frame dimension according to a coding scheme unique to this sub-topic.<sup>6</sup>

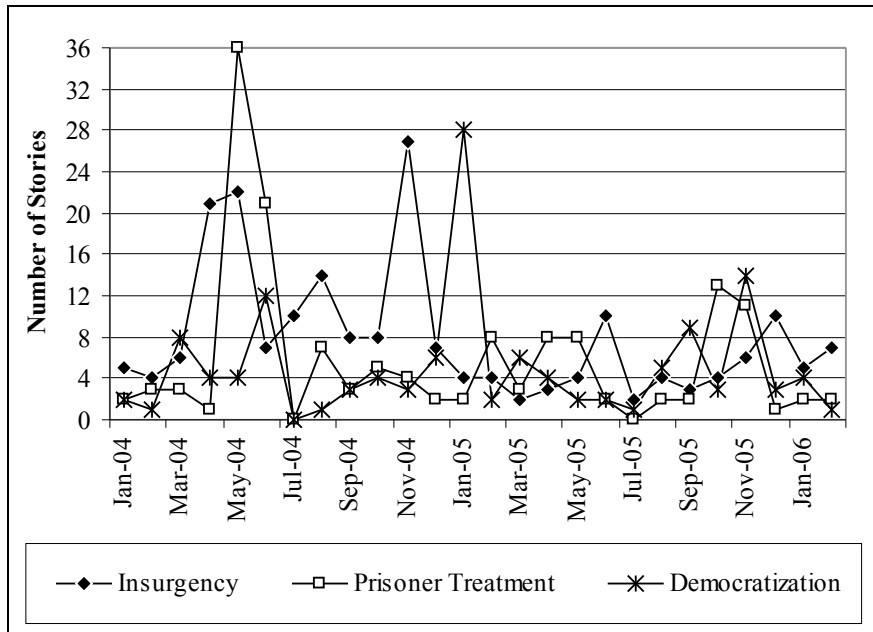
Table 2 shows summary statistics for monthly front-page coverage according to frame dimension.

**Table 2: Iraq War Frame Dimensions with Summary Statistics by Month**

| <b>Frame Dimension</b>                  | <b>Monthly Mean</b> | <b>Monthly Std. Dev.</b> | <b>Monthly Min</b> | <b>Monthly Max</b> | <b>Total Count, Jan04 - Feb06</b> |
|---|---------------------|--------------------------|--------------------|--------------------|-----------------------------------|
| Insurgency                              | 7.7                 | 6.12                     | 2                  | 27                 | 224                               |
| U.S. Treatment of Prisoners of War      | 6.2                 | 7.62                     | 0                  | 36                 | 179                               |
| Democratization                         | 5.2                 | 5.60                     | 0                  | 28                 | 151                               |
| Iraqi Perspective                       | 4.1                 | 4.41                     | 0                  | 17                 | 119                               |
| U.S. Soldier Casualties/Injuries        | 3.6                 | 2.16                     | 0                  | 9                  | 103                               |
| White House Operations                  | 3.1                 | 3.96                     | 0                  | 14                 | 89                                |
| Infrastructure Repair                   | 0.8                 | 1.17                     | 0                  | 4                  | 24                                |
| Human Rights Abuses in Iraq             | 0.8                 | 1.29                     | 0                  | 6                  | 23                                |
| International Perspective/Participation | 0.6                 | 0.90                     | 0                  | 3                  | 18                                |

**Figure 11: Three Most Prominent Frame Dimensions in Coverage of Iraq War**

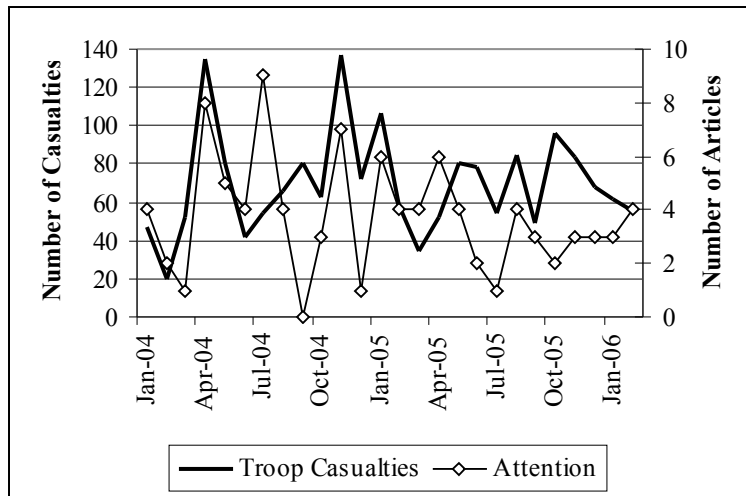
<sup>6</sup> I use the term “frame dimension” to refer to the reference context from which a topic is portrayed. In essence, frame dimensions are no different from detailed subject categories – articles are coded by frame dimension based on the content of the article, nothing more. Issue-framing scholarship typically treats “frames” as specific and valenced arguments, but for the purposes of dynamic analysis this broader treatment is sufficient.



As with attention to topics and sub-topics discussed earlier, an analysis of attention across frame dimensions reveals variance in how much events influence coverage. For example, Figure 11 shows that the largest spike in use of the Prisoner Treatment frame dimension coincides with the breaking of the Abu Ghraib scandal when pictures were released in April, 2004; makes perfect sense. But later developments in the scandal, such as the series of court-martials and convictions of the soldiers accused of these abuses, or the ACLU’s release in December, 2004 of FBI internal memos concerning the torture went all but unnoticed in the framing of the war.

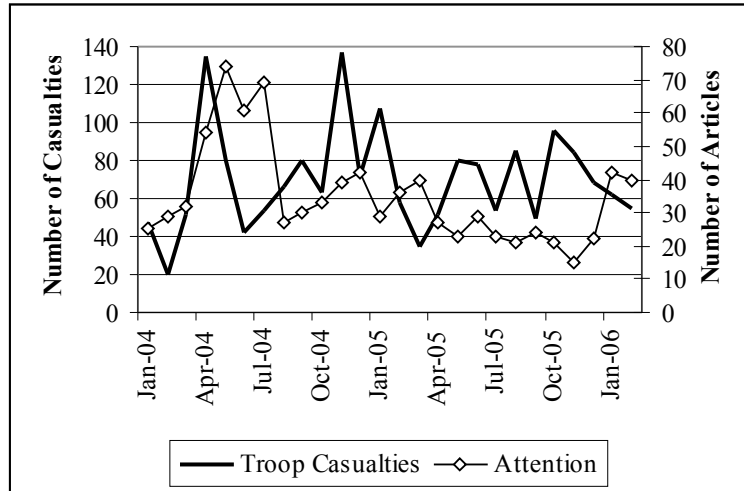
Similarly, use of the U.S. Soldier Casualties frame dimension does not reflect the actual trends number of U.S. soldiers killed in Iraq. Figure 12 shows that, although attention to this frame dimension has tracked the number of soldiers killed at times, there is often a great disconnect between the situation in Iraq and the reference frames used on the *NYT* front page. For comparison's sake, Figure 13 shows the number of U.S. soldier casualties mapped onto total front-page attention to the war.

**Figure 12: U.S. Soldier Casualties vs. Use of U.S. Soldier Casualties Frame Dimension <sup>7</sup>**



<sup>7</sup> Number of U.S. Soldier Casualties taken from Iraq Coalition Casualty Count, a series compiled from Department of Defense Press Releases ([http://www.icasualties.org/oif/BY\\_DOD.aspx](http://www.icasualties.org/oif/BY_DOD.aspx)).

**Figure 13: U.S. Soldier Casualties vs. Overall Front-Page Attention to Iraq War<sup>8</sup>**



In the same way that I analyzed the dynamics of agenda-setting, I assess patterns of change in issue-framing of the Iraq war by first constructing a “Frame Count Series” for each frame dimension by taking the sum of that frame within each month. Next, I create a “Raw Count Frame Change Series” for each frame dimension as the difference between the number of times that frame was used in a given month compared with the previous month. I then repeat this step, this time calculating a Percentage Frame Change Series as described in the above test of agenda-setting dynamics. Finally, I calculate a kurtosis score across the Raw Count Frame Change Series of all frame dimensions, and again across the Percentage Frame Change Series of all frame dimensions, testing the second hypothesis that the kurtosis score should significantly exceed the Normal distribution threshold of three ( $k > 3$ ). To test against inflation of values, I repeat the kurtosis calculations for both versions of the Change Series after removing all zeroes.

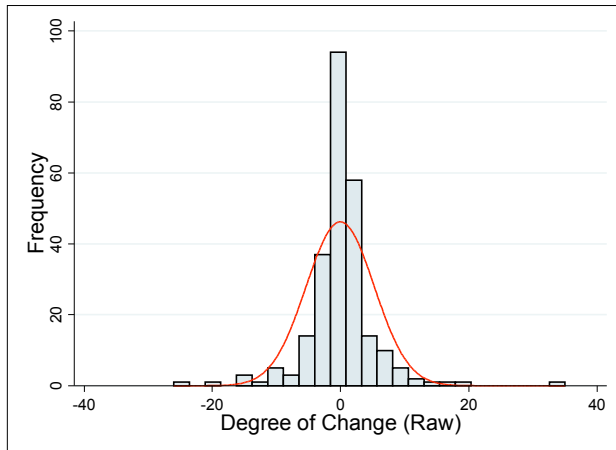
My results offer the first evidence of this kind that issue-framing dynamics, like those of agenda-setting, follow a pattern of disproportionate information processing. With zeroes intact, the Raw Count Frame Change Series yields a kurtosis score of 11.10; without zeroes,  $k = 7.57$ . The

<sup>8</sup> Ibid.

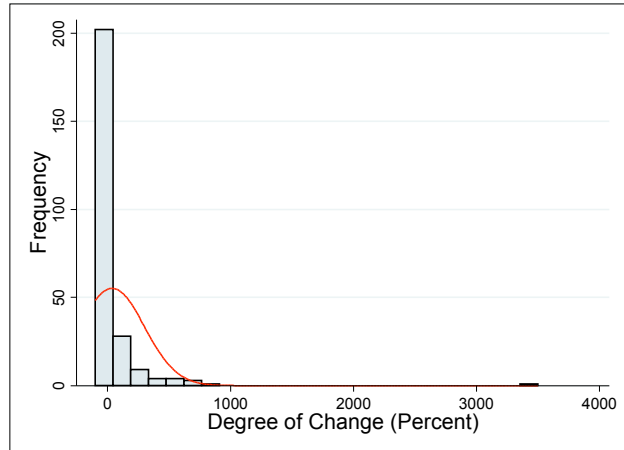
Percentage Frame Change Series, with zeroes, has a remarkable kurtosis score of 122.16; with zeroes removed, the score drops only to 77.12.

Figures 14 and 15 show the histograms of the Raw Count Frame Change Series and Percentage Frame Change Series, respectively. Both distributions are visibly leptokurtic, displaying a tall, central peak and weak shoulders, with small but important observations at the extreme tails.

**Figure 14: Dist. of Frame Change (Raw)**



**Figure 15: Dist. of Frame Change (Pct)**



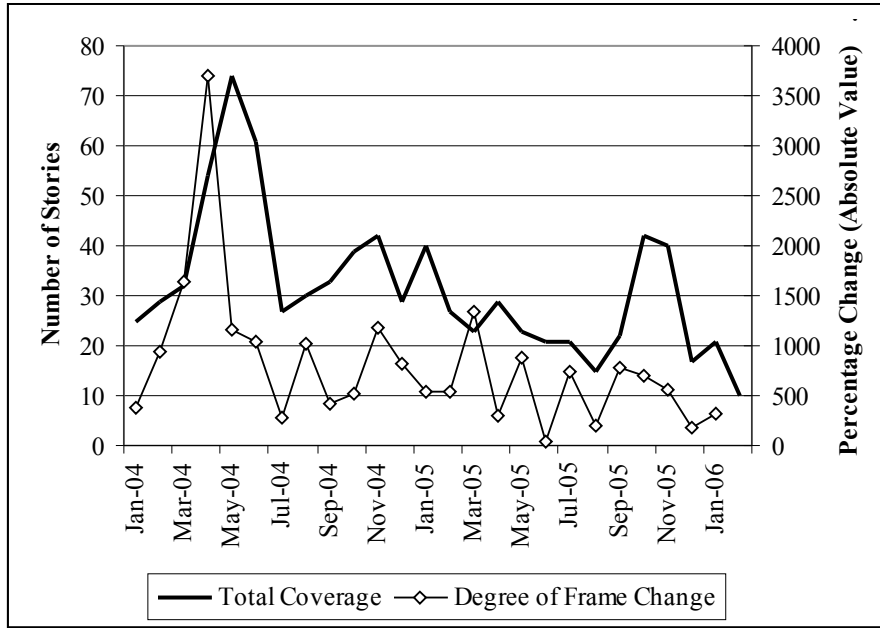
## Discussion

In the political system, where problems and perspectives are many and attention is scarce, agenda-setting and issue-framing are powerful arbiters of what is “important” and what is ignored. Topics

that achieve space on the public agenda and frames that dominate an issue's frame-space gain more than front-page status; they gain heightened, indirect access to nearly every part of the political environment, from citizens' living rooms to Pennsylvania Avenue. Front-page topics and frames provide the stuff of hallway conversations, lobbying leverage points, and the nation's to-do list. Whether shifts in these processes happen gradually, sporadically, or through a pattern of punctuated equilibrium, these dynamics have important political consequences. According to my results, both agenda-setting and issue-framing are governed by disproportionate information processing.

As mentioned already, I believe there is good explanation for why agenda-setting and issue-framing share these same dynamics. Although this line of inquiry is beyond the scope of this paper, I theorize that shifts in issue-framing are a strong predictor of shifts in agenda-setting. To play "Devil's Advocate" for a moment: because both issue-framing and agenda-setting share the same underlying phenomenon – attention – the idea that issue-framing drives agenda-setting may appear tautological at first glance. Perhaps issue-framing, at least as operationalized here, must necessarily move in tandem with agenda-setting. And perhaps when attention to an issue increases, for example, this new attention is automatically reflected in an increase in one of the issue's frame dimensions. By this way of thinking, perhaps events really are the only force that matter in predicting attention. Yet this train of thought is incorrect. Changes in attention to an issue do not necessitate changes in the Frame Change Series, since this increase in overall attention could result in multiple frame dimension changes that cancel each other out in the Raw Count Frame Change Series (in fact, a common occurrence in the dataset). And the Percentage Frame Change Series specifically addresses this concern by normalizing issue-framing shifts.

**Figure 16: Front-Page Attention to Iraq War vs. Pct. Change across Frame Dimensions**



When the Percentage Frame Change Series of each frame dimension in the Iraq War coverage are summed to create a single time-series of framing change, this series traces closely with the raw amount of front-page coverage devoted to the war, as shown in Figure 16. Although more sophisticated analyses will need to be conducted, a basic OLS regression of the number of Iraq war front-page articles on the summed percentage change in frame dimension yields a positive coefficient of 0.15, statistically significant at  $p=.001$  (R-squared = 0.4580, and adjusted R-squared=0.4372). Obviously, a key question is whether directional causality can be established

between issue-framing and agenda-setting. But if these regression results are to be trusted, they imply that every 100% change across frame dimensions (a threshold frequently exceeded in the case of Iraq War framing, as Figure 16 shows) yields 1.5 more *NYT* front-page articles per month. In a context of only six front-page articles a day, when even a single prominent news story can affect the political system, the notion that issue-framing can have even this much influence on agenda control offers compelling testimony to framing's importance as a political mechanism.

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