

2005

Greenwashing: visual communication and political influence in environmental policy

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**GREENWASHING: VISUAL COMMUNICATION
AND
POLITICAL INFLUENCE
IN ENVIRONMENTAL POLICY**

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Manship School of Mass Communication

by
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May 2005

Dedication

To Lynne Gail Woodward Jenner and to my parents.

Acknowledgments

I would like to thank my chair, Tim Cook, who selflessly devoted many hours of his time to this dissertation. From concept to completion, Tim patiently guided my meandering progress with knowledge and understanding. Whether he was responding to my panicked emails late at night or offering a patient ear as I explained the latest nest of charts, Tim helped me push through what at times seemed a Sisyphean task. I relied on his encouragement and depended on his incisive thinking.

Thank you also to Jim Garand who introduced me to political science and whose early support and explanation of statistics made all the difference. Thanks to Kit Kenny for his expertise on political behavior and methods. His continued guidance and camaraderie on our shared research interests has enriched my experience at LSU. As well, thanks to Anne Cunningham for sharing her knowledge on advertising and for her amity. Thank you to Jack Hamilton, who brought me here in the first place and who continues to be an inspiration.

Thank you to my parents, Mavis and Allan, who have always been there for me.

Most of all, I would like to thank Lynne. Without her, this would not have been possible or worthwhile.

Preface

The purpose of this dissertation is to better understand how interest groups achieve their policy goals. In particular, my aim is to examine environmental public lobbying, its impact on policy activity, the extent of public involvement, and the degree to which photographs and text are influential in that process.

Although the specific research questions ask how environmental pictures and text influence the public and policymakers, the underlying motive is to unearth the structure of political power – the power to construct environmental problems and the power to decide how environmental issues are managed by the institutions of government. At its core, the central concern of the dissertation is *the* basic question of politics.

Conventionally, interest groups have been studied from the inside-out. Inferences have been made about the objectives, influences and roles of interests typically on the basis of information provided by interest group principals or members themselves. And that information is usually gathered through questionnaires, surveys, participant observation, or case studies. My approach is to use econometric and experimental techniques to empirically gauge what (if any) impact interest groups have on the construction of environmental problems – amongst the public and within congressional policy communities. Specifically, I employ a pair of media effects approaches to measure influence on policy action, aggregate public concern, and individual-level policy preferences.

The advantage of this approach is that causal inferences are built on real changes in the public opinion and policy action. The disadvantage is that the findings are much more complex. The analysis provides some unique and in many ways counter-intuitive

findings, but in the end there are as many questions provoked by this study as are answered. I have, in short, exchanged concerns of validity for those of complexity.

My specific research questions ask whether images or text influence policy action, public concerns and have an impact on policy preferences. In a more general sense, I frame my analysis around two contemporary and competing theories of political influence – signaling and framing theory. Signaling maintains that interests do not engage in public lobbying unless the issue is a salient concern of the collective public and the public as a whole supports the particular policy resolution endorsed by the group. Framing theory, on the other hand, maintains that interests can and will influence public opinion to suit their policy objectives. I engage these questions in the first chapter by raising greenwashing as an exception to signaling.

In the second chapter, I outline an array of interdisciplinary literature that is relevant to the question of greenwashing. I begin by looking at power in politics, the structure of policy systems and the dynamics of policymaking. This scholarship grounds the remaining review empirically and normatively by providing an overview of theories of political power and the workings of the political systems that create policy. I then examine how these systems and dynamics operate within the larger societal construction of public problems by reviewing research on media agenda setting, public opinion and their influence on policy. Next, I survey findings more central to the study of political influence: framing, information processing and political decisionmaking. With this foundation laid, I finish by offering an argument, based on the review of literature, that photographs in addition to text can provide interests with an alternate means to re-frame public problems.

The third chapter presents the methods I use to answer the research questions. The chapter is constructed in two parts. The first half outlines the agenda-setting study that I employ to examine to what extent mediated text and/or photographs influence the public's aggregate level of concern about environmental issues and policymakers' actions on related issues. In this study, public opinion is operationalized as the salience of environmental concerns and policy action is defined as the number of meetings called by congressional committees on environmental topics. To estimate and analyze the inter-dynamics of public concern, policy action and media pictures and stories, I use a type of Vector Autoregression (VAR) known as Seemingly Unrelated Regression (SUR). In essence the time-series method allows me to determine to what extent mediated pictures and text cause changes in public concern and policy action.

In the second half of the chapter, I discuss the methods that focus on individual-level influence. I use an experiment to test whether greenwashing advertisements can change people's preferences – or at least their reported preferences – on specific public policy questions. The experiment is constructed as a framing effects study and as such is designed to test not only whether the experimental conditions (advertisements) can change opinions but whether the advertisements can change the importance of intervening values or considerations that are seen as pertinent to the decision. In part, framing theory argues that people do not have firm attitudes on specific public policy issues but that they use more enduring values or beliefs to construct momentary decisions on public policy. It is hypothesized that framing works by raising the importance of these underlying values, while diminishing others. In doing so, a frame can promote a particular evaluation of a public policy choice.

Chapter four presents the results of the time-series analysis of aggregate influence. My main concern is with the possibility that both photographs and text have substantial and statistically significant influence on policy and public agendas. Interestingly, I find that pictures and text have discrepant impacts on public concern and policy action. News stories have a strong causal impact on public concern for the environment. The public is also somewhat influenced by pictures but news stories clearly have a more robust effect. Photographs, on the other hand, appear to be the sole influence on policy action. News stories have no discernable effect on policy attention, but an increase in photographic attention to environmental issues causes a surge in committee meetings on environmental topics. It is further observed that pictures in advertisements actually diminish committee action on the environment. Photographs, it appears, have a unique ability to influence policy action.

Chapter five outlines the results of the framing effects experiment. The findings indicate that text in greenwashing advertisements can influence opinions directly and indirectly, whereas photographic effects, which are moderate, only directly influence opinion change. Mediation analysis shows that there is modest but statistically significant evidence of textual framing effects. Text in advertisements can change the importance of relevant beliefs or values that in turn have an effect on opinions. There is no evidence that photographs can raise or lower the importance of values or enduring beliefs and thus change the evaluation of specific public problems.

Contrary to the signaling hypothesis, the results indicate that the public is highly manipulatable. Findings suggest that the public is very sensitive to mediated influence – both in terms of aggregate concern and individual-level policy preferences. Public

concern has strong inertia, but it is significantly and observably influenced by news stories. Sometimes confounding and countervailing systemic effects may inoculate the public from being swayed, as is the case with photographs that appear in advertisements, but aggregate-level dynamics show that the public is sharply and durably influenced by news stories. Individual-level experimentation further establishes that specific policy preferences can be influenced by a single advertisement. The observed preference change is, moreover, substantively important. As is shown in the fifth chapter, exposure to a single advertisement causes people to categorically shift their position on an issue of environmental policy.

In addition, findings also suggest that photographs and text have some rather different and unique effects on the public and policymakers. Text drives public concern and on an individual level guides preferences for specific policy choices. Photographs, on the other hand, influence policymakers. Explanations of these effects are manifold. Words are restrictive in meaning, photographs are not. For an aggregate public, a restrictive meaning will tend to control interpretation. Words literally organize a cohesive meaning for a loosely connected public. Policymakers, on the other hand, are much more unified in purpose and understanding. Environmental photographs immediately thus have a more organized and consistent meaning for policymakers – specifically for policymakers who serve in environmental committees. Psychologically speaking, the pictures will tend to be interpreted in a more consistent way by members of the committee because they have the (shared) concepts and ideas that will allow for the imposition of meaning. Institutionally speaking, members of committees and subcommittees responsible for environmental policy will see a photograph as an indicator

of a particular problem. Calling committee meetings can garner attention and power. Committee members are on the lookout for evidence of problems they can call their own. They may see the photograph as proof that a particular problem exists. Additionally, we can assume that policymakers will calculate that the public is looking at that same picture (regardless of whether the public has collectively constructed the same singular meaning). To not act on the photograph would be, at least in the judgment of the policymaker, politically disastrous. Photographs, in short, operate as an institutional green light for policy action.

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Abstract

Some contemporary theories in political science maintain that public lobbying is merely an expression of latent and resolute public opinion that is communicated to policymakers. Other theories contend that the public is highly manipulable and that public lobbying by extension can be considered a form of strategic framing that takes place through the news and paid media. Both theoretical approaches specify a function for words or text but are silent on the influence of photographs or images. In this dissertation, I hypothesize that environmental public lobbying operates as strategic framing and that text and photographs have unique and discrete effects on public opinion and policy action. In a study on the effects of greenwashing, I examine how photographs and text influence aggregate public concern for the environment, public preferences on specific public problems and congressional committee action on environmental issues. Time series agenda-setting models show that photographs and text do have differential effects on public salience and policy action: public concern is largely compelled by words, whereas photographs drive policy attention. In a related experiment, findings suggest that images may directly influence specific policy preferences, but that there is no evidence of exclusively photographic framing effects. Words on the other hand are capable of directly changing opinions and also show evidence of framing effects.

Chapter 1 – Introduction

With a December 2000 deadline approaching, the Environmental Protection Agency stood poised to issue a ruling on whether or not General Electric should pay for the dredging of PCBs from the bed of the Upper Hudson River.¹ In May of that year, after decades of legal maneuvers, General Electric broadened the conflict with an extensive advertising campaign aimed, apparently, at using the public to influence the decision.

For years, General Electric's Fort Edward and Hudson Falls plants legally dumped PCBs – essentially a byproduct of manufactured electrical products – into the river. The dumping was legal because there were no state or federal laws that disallowed it; the effect, however, was to turn the upper Hudson River into the largest Superfund Cleanup site in the nation.

The advertisements produced for the company suggested that dredging the river would be environmentally destructive and dangerous, that the PCBs had been naturally buried by river sediment and that most river effected communities were against ordering the company to dredge for this reason. The advertisements, which ran on television, General Electric's website and almost every form of printed media did not appear to argue the company's case so much as they presented the anti-dredging message in a dramatic and compelling way. And they did this, for the most part, with the combination of strong evocative images and a few choice words.

One of the advertisements raises concern by simply asking the reader: "Will this be the last dive for ten years?" Another uses short declarative sentences to make its point:

¹ While a final decision wouldn't be issued until June 2001, the December ruling promised to be the end of a long line of assessments, appeals and reassessments on the case.

“The Water is Clearer. The swimming is safe. The herons are nesting. The boaters are everywhere. The bald eagle is soaring. The tubing is great. The fish are getting bigger. The Hudson is back. Why dredge now?”

The foundation of the advertising strategy also appears to rest on the impact of photographic evidence. One advertisement shows a clamshell dredger oozing sludge. Video images depict trucks leaking apparently toxic mud. Another advertisement contrasts the apparent destructiveness of dredging with images of children by the placid river watching ducks swim by. Taken together, the images viscerally show that dredging is dangerous and that the river, which might have been polluted once, isn’t anymore. What General Electric seemed to understand was that people might doubt a General Electric spokesman, but they would not mistrust visual proof. General Electric appears to be using pictures in a way that evokes a particular evaluation of the public problem and using the inherent “truth” of images to elicit this evaluation. Photographs, in short, appear to be providing some visually negative associations by which we should evaluate dredging.

On a theoretical level, the corporation’s apparent attempt to influence an EPA ruling introduces questions about the political interaction of interest groups, the public, the media, and policy makers. General Electric’s campaign specifically raises questions about the construction and resolution of public policy issues. Who, for instance, are the advertisements directed at? Is General Electric principally interested in influencing the public or the policy makers? If it is the public, do the advertisements actually change their preferences? Or are the advertisements merely a reflection of the latent but true preferences of the public as a whole? If the advertisements do change opinions, to what

extent is that opinion change due to the influence of the photographs or the text? Or is it some combination of the two?

Furthermore, was the dredging issue something that the public cared deeply about before the advertising campaign, or did General Electric, by running an expensive series of advertisement “artificially” raise the salience of the problem? Conversely, was the campaign communicating the true salience of the issue in hopes of “signaling” these concerns to policy makers?

Contemporary scholarship in political science and political communication does not offer a unified response to this long list of questions. Instead two contemporary and competing theories provide contending explanations for the actions of General Electric.

Framing theory, which has wide acceptance in the literature of political communication, suggests that General Electric is attempting to manipulate public opinion. For some scholars (Jacobs and Shapiro, 2000), framing represents an almost limitless means by which elites may manipulate public opinion to suit their policy objectives. According to the theory, public preferences can be controlled by the way in which the issue is presented. Because most people do not possess specific policy preferences, a particular policy position can be rhetorically promoted by associating it with certain underlying and important values.

On the other hand, signaling theory, proposed by interest group scholars such as Ken Kollman (1998) contends that interest groups do not engage in public lobbying unless they have the support of the public – both in terms of salience and preference. In contrast to framing, signaling argues that interests cannot easily manipulate preferences because public opinion generally remains fixed on issues of public policy. In this

particular case, General Electric's actions would be construed by signaling theory as being illogical. Because evidence suggests that the public was not at the time broadly supportive of reduced environmental protection, General Electric is expanding the conflict to include a public that held preferences that were contrary to the policy objectives of the corporation.

Neither signaling nor framing provides an answer to the questions of modal influence. If the public lobbying campaign by General Electric is indeed manipulating opinions on the dredging issue, there is scant empirical work across the literature of political communication that would address the extent to which those effects were attributable to text or photographs. Theories of opinion change in the past have considered textual influence exclusively.

My objective in this dissertation is to engage these questions and hopefully provide some elucidation to these theoretical conflicts and oversights. I will first examine the extent to which text and images influence the salience of environmental issues amongst the public and policy makers. As part of this investigation, I will also assess whether interest groups influence preferences as part of public lobbying campaigns. By answering these questions I will compare signaling and framing as alternative models by which to explain how interests interact with the public and policymaking community.

To test my hypotheses, I will use an experiment to examine the effects of multi-modal environmental appeals and I will also conduct an agenda-setting analysis to determine the influence of text and images of the environment in the media on the policy and public agendas.

If I can provide evidence that text and/or images influence the salience of environmental concerns and influence specific policy preferences, then I will have found support for the idea that interest groups do not *just* signal latent public opinion but that they endeavor to shape it. Further, if I can establish that greenwashing operates as has been outlined, then I have supported the strategic framing hypothesis in a particularly “tough case.” If an organization like General Electric can effectively present its political objectives as the “environmentally-friendly” alternative and people are indeed influenced, then I will have established particularly strong substantiation for the idea that signaling does not adequately or thoroughly explain the public lobbying efforts of interest groups.

Signaling Theory: Interest Groups and Influence

Contemporary research on interest groups provides a point from which to begin examining the politics of policymaking and the interaction of interest groups, the media and the public. In interest group literature, a current theory in favor suggests that interest groups are a mechanism through which the true concerns of the public are given political focus and potency. Interests, in other words, provide a means to signal public preferences to political decision makers.

With its roots in game theory, the signaling model proposes a pattern of public lobbying whereby interest groups communicate true popular support to policymakers. Notably, this communication is envisaged as purely informational, that is the interest group is doing nothing more than providing an accurate indication of public preference. Kollman (1998), a leading proponent of this theory, argues that political interests use public appeals only when they believe that their position on an issue has widespread popular support. Outside lobbying, according to Kollman:

Contrary to the view that it produces phony grass-roots support, is far from artificial. It is actually a good way for policy makers to learn what their constituents care about. My data show that outside lobbying on average works as a policymaker might hope: it communicates fairly accurately the salience of policy issues to large numbers of constituents, and it often influences the salience of policy issues to benefit the more popular side of an issue. (p.13)

Political interests, in other words, go public only when mass preference and salience are in their favor – to do otherwise would irrationally waste limited resources. The amount of investment required to influence policymakers when public has strong feelings against an interest group's policy positions renders it unlikely that interests will employ conflict expansion "of a bad kind, where the salience of a policy issue is inflated artificially with propaganda"(Kollman, p.80). Outside lobbying is a costly use of limited resources (certainly when compared to an alternative, inside lobbying) and especially in cases where salience of an issue is low and public preference is against the group's policy position.

Like other pluralist theories, signaling hypothesizes a system in which public opinion is broadly influential. Kollman, in fact, argues that public opinion is exogenous to the political struggles of problem definition. Interest groups do not manipulate public opinion; they merely focus attention on latent preferences when it suits their ends. Public opinion, to put it slightly differently, both constrains the actions of interest groups and directs public policymakers (Kollman, p.156).

Greenwashing: An Exception to Signaling

According to the signaling model, interest groups can observe, measure and act upon an apparently "true" level of popular support for all policy issues (Kollman, p.81).

Aside from some commensurate increase in issue salience, interest groups do not change the nature of support, but instead, when public opinion points in the right direction, groups will direct the attention of the policy makers to this public sentiment and then policymakers will choose to act upon this information. Signaling may operate as conflict expansion, but will do so only when the group's policies are popularly supported.

On first glance, signaling makes sense. It offers concise expectations under which we would expect interest groups to engage in outside lobbying. It presents straightforward predictions of the rational calculations faced by interests engaged in strategic decisionmaking. But the signaling model may not always account for what interest groups do and how the public behaves. Consider, for instance, anecdotal cases like the General Electric campaign described above. It appears as if General Electric conducted its advertising campaign in order to influence the public, not merely signal its latent preferences and salience.

General Electric engaged in a public lobbying campaign aimed at preventing the EPA from forcing them to clean up the Hudson even though public preferences have been broadly in favor of governmental protection of the environment since it has been measured in the early 1970s (Dunlap, 1991). We can either conclude that what General Electric has done is illogical – that is signaling to policymakers that the public is broadly supportive of environmental protection, or we could conclude that General Electric was attempting to manipulate public opinion to serve its political and financial ends. Facts surrounding the General Electric campaign suggest this is the case.

The EPA is required by law to consider public opinion in making its decisions. Following seven months of General Electric's extensive advertising campaign, public

opinion along the lower 200-mile stretch of the river was closely divided with a slight majority opposing dredging. Elsewhere, in regions where the advertisements did not play or did not air in such high frequency, public opinion was overwhelmingly favorable towards a cleanup (Perez-Pena, 2001). The Marist Institute for Public Opinion found as much in a poll conducted in late September of that year. A *Times Union* headline on November 17th read, “Poll finds GE ads have influenced dredging opinion.” The response from the advertisements further supports the influence. EPA officials said public participation in the decision was, according to a *Poughkeepsie Journal* article, “unprecedented” (Roy, 2001). Although Mark Behan, a spokesman for General Electric, maintained that “there is widespread opposition to dredging in the upper Hudson River”(Hammond, 2000) and that “we think residents should be heard”(Cappiello, 2000), one year later he as much as admitted that the public campaign went far beyond mere signaling when he said that “GE spent its money to ensure that the public had a balanced view, and had access to information that would not have been presented”(Jochowitz, 2001). By arguing that General Electric was attempting to give the public information that it wouldn’t already have, Behan, anecdotally anyway, undermines any argument that General Electric merely aimed to signal latent public opinion.

If we accept the fact that General Electric did actually attempt to influence the EPA’s decision by changing public preferences, then we have an anecdotal exception to the signaling rule. If what General Electric was doing was common practice, however, we have a *prima facie* case against Kollman’s model of outside lobbying as signaling.

There is some evidence that General Electric’s advertisements are just one example of a genre of public lobbying conducted by industrial interests to influence the

public and/or policymakers on issues relating to the environment. This genre of public lobbying, which media-watchers and environmentalists have dubbed greenwashing, is understood of as being the corporate response to the rise in public concern for the environment.

One authoritative source defines greenwashing as public relations efforts to present a corporate persona aimed at diverting demands for more substantial policymaking changes at the governmental level (Beder, 2002). In essence, greenwashing consists of any advertising, marketing or public relations actions by corporations to project an image of being an environmentally-minded organization, even when their business practices are destructive.

Beder further writes, “Environmental public relations, or greenwash, has been a response to the rise of environmental concern, particularly in the late 1980s” (2002, p.253). A basic etymological hunt provides some support for this conception. As a word greenwashing has appeared in response to modern environmental consciousness. The term greenwashing appears to have entered common usage in the 1990’s. A Lexis/Nexis search indicates that the first instance of the term to appear in a major American newspaper was in 1990.²

In recent years, some examples of what could be considered greenwashing include the “Beyond Petroleum” campaign conducted for British Petroleum. In this campaign, launched in August 2000 by Ogilvy & Mather, at a cost of \$200 million dollars, British Petroleum re-branded itself as BP and insinuated that the letters were now

² Based on a Lexis/Nexis full-text search for the term in the general news category. USA Today was the first major American newspaper to use the term. In this case, the term was used to refer to the increasing public relations efforts in an article on Earth Day in 1990.

an acronym for “Beyond Petroleum.”³ According to a *Marketing Week* article, BP’s re-branding was “an attempt to establish its green credentials and demonstrate a broader consumer offering” (2001). The *Petroleum Economist* similarly conjectured that BP was looking to re-invent itself as eco-friendly: “It recognised that scale, wealth and power were no longer the attractive values that they were before the late 1960s. A new corporate personality, in tune with the ethically aware 21st century, was called for” (2002).

Other companies soon followed suit. Shell Oil’s “Profits and Principles” campaign is less brazen but similarly targeted effort to present the company as being environmentally aware. Chevron Texaco’s more recent “turning partnership into energy” campaign uses pictures of children and clear skies to promote technological advances that are helping to create “cleaner and more efficient energy for everyone.”

Just a glance at corporate advertising efforts in major national magazines thus suggests that, contrary to what the signaling model predicts, greenwashing efforts flourish. Beder estimates that by 1995, U.S.-based firms were spending nearly \$1 billion a year on lobbying and public relations efforts of this type (p. 253).

But is it fair to argue that these corporate re-branding efforts that appear to be nothing more than nebulous attempts to “establish green credentials” are comparable to the explicit appeals of General Electric to influence a specific policy outcome. Can one make the argument that these actions are something other than basic image advertisements, created to assuage the heightened environmental concerns of consumers and some stockholders? Can one make the case that these image advertisements are actually an active form of public lobbying?

³ Frey (2002).

In his definition of the concept, Beder contends that even though the public appeals have the ostensible purpose of crafting a green image – of BP being “beyond petroleum” or Shell’s “principles” – the ultimate objective is to avoid damaging policy action. According to Beder, the greenwashing image advertisement is not merely a passive response to public concern but a proactive effort for “heading off demands for more substantial and fundamental changes and government intervention” (p.253). Image and issue advertisements are thus blurred.

Greenwashing, according to this understanding, is public lobbying as conflict expansion. These public relations and advertising campaigns are directly interested in influencing public preferences. But this influence of public preferences is for the purpose of specific policy objectives.

Greenwashing as Influential Public Lobbying

Descriptive evidence supports Beder’s contention that greenwashing in general is a form of public lobbying aimed at manipulating perceptions to achieve policy ends. Contemporary greenwashing campaigns, for one, do not appear to be a response to environmental concerns – or at least to environmental concerns exclusively. Recent advertising efforts have in fact been produced at a time when public concern for the environment is comparatively low. Second, a more comprehensive review of industry-sponsored environmental advertising suggests that the motives for greenwashing shift over time but the ultimate objective seems to be to diffuse policy action.

If greenwashing were merely a response to heightened public concern for the environment, then one would expect to see greenwashing only during crests of public

anxiety.⁴ But this is not the case in the greenwashing campaigns discussed above. Both the specific policy-targeted campaign conducted by General Electric and the re-branding efforts of the petroleum industry occur when public concern for the environment is low.

In April of 2000, just two percent of the people surveyed by Gallup listed the environment as the most important public problem – pretty much the low water mark of public concern since 1989. Ten years earlier, in April of 1990, public concern was four times that.

The objectives of these greenwashing efforts appear to be less of a reaction to immediate market forces than a strategic (and political) action. For certain, the leaders of BP and Chevron/Texaco and General Electric have financial objectives in mind, but these advertisements can't be about the immediate protection of market share. The market – as the above numbers show – is plainly concerned with other issues.

The most plausible explanation for the greenwashing advertisements is that with public concern low, corporations – collectively and individually – have an opportunity to *keep it that way*. By limiting and diffusing the issue, generally, industry can prevent the environment from becoming a pressing public issue that demands the attention of the policymakers.

As the world's second-largest oil company, BP's decision to re-brand itself as being "beyond petroleum" might have created a powerful inertia within the industry as a whole. Other oil companies might have been compelled to closely watch if not follow BP's initiative. The *Petroleum Economist* takes this perspective anyway, when it generously assesses BP's actions as being radical and progressive: "There were plenty of

⁴ I am speaking of salience here, because as a valence issue, broad public support for environmental protection is understood as ebbing and flowing with the salience of environmental issues.

critics, but BP has stolen a march on its competitors by being first to do implicit penance for the industry's past failings and acknowledging the necessity for internal culture change.”

But this appraisal is just a variation on the theme that greenwashing is merely a response to market share concerns – not a fundamentally political action. It is slightly different, in that it makes the argument that what BP and others are doing is not just a response to heightened concern but a fundamental shift in the public consciousness. Because the public has as a whole become more ecologically aware, oil companies must finally change how they are perceived.

This estimation, however, doesn't square with the history of greenwashing. In fact, a review of advertisements produced by industrial interests in Time magazine over the past forty years shows that BP's actions are not as innovative as the Economist estimates. As we shall see, industrial interests have been using advertisements to present themselves as environmentally-concerned for over forty years.

Greenwashing, far from being a recent and reactive response to public concern, has been a staple of industrial advertising for decades. A survey of the advertisements since 1962 presents a descriptive assessment that advertising campaigns like General Electric's efforts to stop dredging in the Hudson and BP's re-branding are long-running strategic effort to manage public perceptions on the environment and ultimately minimize regulatory action.

Environmentalism in America

Nineteen seventy is widely regarded as the year of environmental awakening in the United States. This was the year in which the environmental movement – as a

political philosophy – became widely relevant to the public, media and politicians. In 1970, President Nixon created the EPA by presidential order, Congress passed the National Environmental Policy Act, the very first Earth Day took place, and Friends of the Earth, the League of Conservation Voters and the Natural Resources Defense Council were all founded. This burst of attention is in part attributed to several environmental disasters that took place in the late 1960s⁵ and in part to the publication of two influential books.⁶

But the events of the 1960s did not create the environmental movement out of thin air. In the Western philosophical tradition, the germ of environmental philosophy in America is evident in the transcendental writing Henry David Thoreau and Ralph Waldo Emerson. But long before the industrial revolution upturned the American Landscape and culture, early colonial settlers were apparently aware of the limits of natural resources; some of the earliest conservation decrees and legislation goes back to the late 17th and early 18th century.⁷ Later, as factories and mechanization reached through the Midwestern cities lining the great lakes, the so-called externalities of industrial expansion began to impinge upon the quality of life in urban centers. In 1881, cities like Cincinnati and Chicago were the first to try to regulate emissions. In 1864 the federal government for the first time set aside lands for reasons of natural preservation. On June 30, President Abraham Lincoln signed a bill into law which granted part of Yosemite Valley and the

⁵ In 1967, the supertanker *Torrey Canyon* broke apart off England, spilling 30 million gallons of oil into the ocean. Two years later, a blowout on Union Oil's Platform A spread 200,000 gallons of oil along 35 miles of California coast near Santa Barbara,

⁶ Rachel Carson's (1962) *Silent Spring* and Paul Ehrlich's (1968) *Population Bomb*.

⁷ In response to noticeable decline of deer due to excessive hunting and land clearing, Massachusetts prohibited the hunting of deer between January and July in 1698 and in 1718 banned hunting of deer altogether for three years (Foster et al., 2002).

Mariposa Grove of Giant Sequoias to the State of California as an inalienable public trust. Thirty years later, the Sierra Club was founded in 1892.

Further, as Switzer (2004) points out, the modern environmental movement has its roots in the twin philosophies of preservation and conservation, which have been dueling for institutional and public support since the turn of the century. Preservationists, inspired by John Muir, writer and founder of the Sierra Club, believed that nature should be protected because it had value in its own right, and because it should be preserved in its pure state for future generations. Conservationists, like Gifford Pinchot, however, believed that natural resources could be used for the benefit of mankind as long as the resources were used sustainably and would not be depleted.

As the more pragmatic of the two philosophies, conservationism prevailed as environmental policy evolved into a responsibility of the federal government. In 1908, Pinchot coordinated the first international environmental conference sponsored by the federal government. The conservationist ethos became wrapped up in the reforms and vision of the Progressive Era, and thus changed the meaning of conservation considerably. Progressive optimism in reform and in the ability of humankind to make all things better, tended to dilute the preservation ethic further. During the progressive era, conservationism became a matter of using natural resources efficiently.⁸

Greenwashing Since 1962

If industrial greenwashing were merely a public relations response to market share concerns –whether that public concern was merely a rise in salience or a more fundamental shift in consciousness, as the *Economist* argues – then one would expect the

⁸ Information on Pinchot and the Conservation conference and the role of progressivism in conservationism from Switzer (2004) and Nash (1990).

practice to have emerged in response to public concern. By this logic, greenwashing would have originated after 1970 or after 1989. This is in fact the conventional belief. In defining the term, Beder writes that the practice is a response to the “heightened ecological consciousness of the 1990s.”

But a review of industrial-sponsored advertisements that relate to the environment reveals that greenwashing has been around for far longer than that. And, as we shall see, greenwashing does not appear – initially anyway – in response to a surge in public concern, but in response to immanent regulatory action by the federal government.

Writing in *The New York Times Magazine*, Darcy Frey is as doubtful of BP’s efforts to re-brand itself as an environmentally caring corporation as he is incredulous of their tactics. He asks: “how can an oil company be “Beyond Petroleum” without actively distancing itself from its core product, and how can a company that digs big holes in the ground possibly advertise itself as a sensitive steward of the environment?”

But while BP’s campaign might have been notable for its bold approach, it was nothing new. The astonishment expressed at BP’s approach, in fact, turns out to be short-sighted and naïve. Companies similar to BP have been advertising themselves as sensitive stewards of the environment for decades. General Electric’s brazen Hudson River campaign and BP’s re-branding are part of long tradition of industrial strategy to position themselves as environmentally caring.

Environmentalists charge that industrial interests have polluted and depleted natural resources as part of their core business for many years. They have also, for many years, produced advertisements that assert that they do not. And while evidence shows that the advertising campaigns display an astute awareness and sensitivity to public

perceptions, they are not merely a reaction to public concern. They are, to the contrary, an attempt to manage that anxiety. At times when public concern for the environment is modest, greenwashing aims to keep it there. When public concern becomes acute, greenwashing aims to diffuse it. In much the same way that BP is given credit for responding to the change in public consciousness, greenwashing efforts have long been positioning and repositioning industry as a caring steward of the environment. The advertisements in fact conform to discrete phases in which industry is reacting to the caprices of public sentiment. As such, these efforts are attempts to manage public perceptions of the various industries' impact on the environment.

In addition to public concern, these efforts also appear to be responsive to broad trends in federal environmental protection. Advertising patterns show that as the federal government indicates that it will increase environmental regulation, greenwashing increases. When the administration openly indicates that it is in opposition to environmental regulation then greenwashing decreases.

This type of long-term management amounts to a form of public lobbying whose aim is to diminish public concern and to minimize government regulation. The public relations, marketing and advertising efforts that constitute greenwashing, in other words, do not require that these companies distance themselves from their core products (to appear green when the public cares); rather they exist *because* of what the companies' core products are. These companies appear to understand that by necessity of their business practice they are continually engaged in a campaign to manage public concern and preferences and policy action.

To get a picture of the ebb and flow of environmental public lobbying over time, I reviewed all of the environmental advertisements sponsored by corporate interests that appeared in Time magazine from 1962 to 1992. What follows is a descriptive summary of trends and observations.

Greenwashing Pre-Dates the Modern Environmental Movement

Contrary to the widely accepted notion that greenwashing was a *response* to the heightened ecological consciousness of the 1990s, industry-sponsored advertisements that tout corporate environmental concerns have been a staple of industrial public lobbying efforts at least since 1962. While greenwashing as a word and publicly discussed concept is new, the practice by industrial interests to present themselves as protectors or supporters of the environment is not.

In 1962, several major resource companies, including Georgia Pacific, Wyerhaeuser and Sinclair Oil ran advertising campaigns that variously promoted their concern with the natural environment. The forestry companies individually and collectively claim to be caring stewards of America's forests. Almost every advertisement from a forestry company that year, asserts that trees are a renewable resource and that the forestry industry is working to ensure that. A major theme in these early advertisements is that they were planting many more trees than they were harvesting. Georgia Pacific, for example, claims "a sustained, perpetual harvest of fine timber." Wyerhaeuser states that "we must manage our forests to assure a continuous, never-ending supply of wood."

Greenwashing advertisements are not limited to the forestry industry. Sinclair Oil, for one, takes an oblique approach to promote itself as an industrial conservationist. In a

series of advertisements that do not mention oil exploration at all, the campaign pictures a series of wilderness areas, such as Cape Hatteras, the Ozarks and Canyonlands, and promotes itself a “public service message on Americans’ need for more outdoor recreation opportunities.”

Greenwashing: Reactive and Pro-Active

At times, greenwashing is clearly a reaction to heightened public concern about the environment. By necessity, then, these types of advertisements are produced when the environment becomes a primary concern for the public. At other times, however, greenwashing appears when public is not overly concerned about the environment. At these times, greenwashing can be interpreted as an effort to keep environmental issues off the public and policy agendas.

Some examples of the first type of greenwashing include a Volvo advertisement in 1970 in which the Swedish automobile is being sold as a long-lasting automobile that won’t contribute to the landfill and pollution problem. The advertisement pictures an abandoned American car beneath a bridge. The advertisement declares: “people everywhere are throwing up their hands and walking away from cars; littering the roads with monuments to frustration.”

KitchenAid attempts to sell its dishwashers in a strikingly similar manner. There is no explicit mention of pollution, but a garbage heap looms over the top half of the advertisement. A cigarette company, Lark, taps into the salience of environmental concerns by claiming that air pollution would be a lot less severe if automobiles used their special “gas trap” filter. In 1969, Potlatch, a forestry company, changes course from

the typical stewardship advertisement to make the claim that they have spent millions to save Clearwater River.

In 1991, GTE insinuates natural resource depletion as a metaphor for telephone service. Underneath a picture of wild animals drinking at a watering hole at sunset, the copy reads “the power of a resource essential to all.” Amway takes the tenuous position of promoting itself as a network of environmental activists. In 1990, Volvo again promotes itself as a green car maker with an advertisement that reads “Volvo chooses the natural path.” Most speciously, Precision Tune touts its tune up as the best thing one can do to reduce pollution. The advertisement reads, “Precision Tune is America’s Clean Air Act.”

But greenwashing advertisements do not just react to high public concern. Most of the time, in fact, they appear to be pro-active efforts at keeping public concern low. This is the sort of advertising that the energy companies are currently producing. Chevron Texaco, for instance, ran an advertisement in 2004 which pictured a boy, in waist-high green grass looking up at the clouds in a bright blue sky. The advertisement claims that Chevron Texaco is working towards cleaner energy. Exxon Mobil takes a similar approach, but instead of a blue sky and a young boy, it evokes ecological concerns by using a picture of the earth from space. The company claims that they are reducing emissions but the strength of its greenwashing power is found in its rhetorical identification with public’s ecological concerns. The iconic power of the photograph of the earth from space contributes to the punch of the advertising copy: “What drives us to lead our industry in research, reduce emissions by increasing efficiency, and help hundreds of communities grow? ... We’re all in this together.”

Industrial Public Lobbying in Six Phases

Industrial public lobbying over the last forty years generally appear to conform to the broad contours of public concern but also the changes in the federal regulatory environment. Since 1962, we can divide environmental politics into six broad periods of rising concern and activity and decline. These intervals, which loosely correspond to shifts in legislative activity, enforcement of environmental laws and regulations, the rise and fall of the public agenda, and presidential tenure, are as follows:

Phase One (1962 to 1968). Presidents Kennedy and Johnson are in the White House. Environmental policy does not appear to be a priority for the president (Switzer, 2004) but Lady Bird Johnson publicly pursues and endorses environmental preservation. In Gallup's survey of the American public, the environment does not surface as an important problem facing the nation. Federal environmental legislative activity begins. Prior to 1963 only two major pieces of federal environmental legislation exist. By 1969 there are ten.

Phase Two (1969 to 1975) Presidents Nixon and Ford in the White House. President Nixon creates the EPA by executive order in 1970. Legislative activity which started in the previous phase, continues to build. Twelve major environmental acts are passed between 1969 and 1975. For the first time since Gallup began asking the question, the environment surfaces as one of the most important problems facing the country. In January, 1970, three percent of those surveyed list the environment as the single most important problem. By the end of that year, the number will surge to ten percent.

Phase Three (1976 to 1980) Presidents Ford, Carter and Reagan in the White House. Although Carter publicly supports strong conservation measures, the energy crisis

takes priority and this in part limits his capacity (Switzer, 2004). The energy crisis also appears to quash the public's environmental concerns. From 1976 to 1980 the environment is the the highest concern for less than two percent of the American public. Environmental legislation slows. Congress passes eight environmental acts and amends the Clean Air Act and Clean Water Act.

Phase Four (1981 to 1988). President Reagan in the White House. Reagan – especially in the early years is outspoken against environmental regulation. Before re-appointing Ruckelshaus as administrator, he makes a number of symbolic and controversial appointments to the EPA.⁹ Congressional action on the environment slows pace. Only four environmental acts are passed. At the same time, Congress amends the Superfund Act, Clean Water act and three others.

Phase Five (1989 to 1996) Presidents Bush and Clinton in the White House. Bush announces that the environment will be one of his priorities. Clinton's Vice President is a well-known environmentalist. Public again becomes highly anxious about the environment. That concern crests in June of 1990, when eight percent of the American public report that the environment is the most important problem facing the nation. Legislative activity, however, slows as congressional gridlock commences. Beginning 1994, an increasingly Republican Congress diminishes regulation in environmental laws and elsewhere.

Phase Six (1997 to present) Presidents Clinton and G.W. Bush in White House. Environment ceases to be a high priority in the late years of the Clinton White House.

⁹ One example of the Reagan administrations antipathy to environmental protection is the appointment of James Watt as Interior Secretary. Watt was the founder of the Mountain States Legal Foundation, whose sole purpose was to oppose environmental regulation. He was also publicly critical of environmentalists whom he considered “dangerous and subversive.” Six weeks into his term as Interior Secretary, Watt refused to speak to representatives of environmental organizations (Switzer, 2004, p.77).

Early in his occupancy of the White House, President Bush withdraws intentions to sign the Kyoto Treaty, cuts the budget for EPA's enforcement and compliance office, loosens water and air pollution standards, and opens more federal land for logging and mining. Publicly he espouses environmental rhetoric. Generally low levels of public environmental concern prevail throughout the period, but there is some backlash to his early actions, especially his intentions to remove mercury as a toxic substance under EPA guidelines.

A survey of industry-sponsored advertising suggests that greenwashing efforts conform to these phases of environmental politics fairly well. As we shall see, public concern for the environment does not define when industrial interests engage in greenwashing. Greenwashing exists both when the public is very concerned about the environment, but also when the environment is barely on the public's map.

This review indicates that greenwashing efforts seem to increase at times when the federal policymaking is increasingly protective of the environment or tending towards the regulatory and falls or disappears when it is not.

The shifting strategies that are evident in these phases indicate that advertising conducted by industrial interests is a proactive public lobbying effort whose aims are both to alleviate public concern and limit regulation. Industrial greenwashing does not appear to be merely a reaction to heightened public concern but a deliberative and protracted effort to managing the public and policy agendas.

Phase One: Industry as Conservationist – Greenwashing emerges not in response to a groundswell of environmental concern. While public concern for the environment is

moderate (and growing) the response appears to be driven more by increasing and immanent regulatory action.

During this phase greenwashing is primarily, if not exclusively, produced by resource companies espousing their good stewardship. Logging companies, who appear to have reached an industry-wide agreement, produce the most advertisements. In the advertisements, the companies espouse a conservationist ethic as one means to offset the growing concern for diminishing wild lands; people, the advertisements imply or openly state, should be able to use the natural resources, but, as if taking their cues directly from Pinchot, they emphasize that they are using the resource in a sustainable manner. Georgia Pacific, for example, states that they practice “‘Dynamic Conservation,’ a policy that guarantees a virtually limitless source of forest products.” Potlatch, another logging company, claims that “these self-replenishing timber reserves are kept green and growing through efforts of progressive timber companies. . . .”

Technological optimism of the 1950s and early 60s also bleeds into the greenwashing efforts of this phase. The modern methods of forestry are publicized as being a means by which the companies are able to achieve sustainable forestry. This confidence is certainly part of the pervasive trust and hope that was placed in technological advancement of the time, which was driving the cold war and the space race but also being employed to fuel a consumer revolution. It may, too, be an extension of the influence of the progressive movement in forestry.

In the same Georgia Pacific campaign as mentioned above, the company claims that “modern forestry methods grow 3 to 5 crops for Georgia Pacific in the time it would take Nature alone to grow a single stand of trees.” In a Wyerhaeuser advertisement, a

helicopter is pictured dropping seedlings onto a steep slope for “replanting.” In another Wyerhaeuser advertisement, they announce that “a computer is baby-sitting these young trees.”

Phase Two: Environmental Awakening – The second phase of environmental politics is associated with a shift in the scope and tactics of greenwashing. Ten percent of the public considers the environment the most pressing issue facing the nation. President Nixon, who was convinced that the public concern with the environment was faddish, nevertheless accedes to create a centralized federal institution to exclusively administer environmental laws. Greenwashing advertisements appear to address this change. Instead of assuring the public that they are not harming the environment, the advertisements now acknowledge that there are environmental problems, but that they’re engaged in fixing them. With the increased salience of environmental concerns, greenwashing increases in volume.

In addition to the claims of industrial organizations, other companies, whose core business practices have only tangential impact on the environment, also attempt to tap into the public attention. Advertisements from this period exploit this topical anxiety by making overt claims that they helping to reduce pollution. The KitchenAid and Volvo Advertisements discussed above are two such examples. Industrial interests as well throw a wider net. In full-page advertisement with a picture of a river, the timber company Potlatch states that they make efforts to reduce water pollution. General Electric claims in one advertisement that nuclear plants don’t pollute the air. The ad includes a color photograph of a match and smoke drifting upward. On the next page, the text reads, “light a match and you put something in the air that nuclear plants don’t.” In another, General

Electric asserts that its garbage-disposal units are helping to clean up the landfill problem. The headline reads, “Jasper, Indiana. The town that made garbage illegal.” On the facing page, a full-page color photograph shows green, rolling hills and a small town. Similarly tenuous, Cynamid, a conglomerate, claims that its chemicals are responsible for cleaning the Mississippi. Buried in the advertisement, the company is actually claiming that it is merely cleaning the water for use in industrial cooling applications. The headline shouts: “Cynamid science ... scrubs the mighty Mississippi.”

Phase Three: Energy Crisis – With the emergence of the energy crisis, greenwashing advertisements decline. Natural resource companies, predominantly in the petrochemical sector, still advertise (very heavily in fact) but they are principally concerned with establishing a need for more exploration and lessened regulation. Advertisements in this phase reflect this overall uncertainty about the environment, others are an explicit public lobbying effort to influence Carter’s energy policy.

In 1978, Exxon runs an advertisement with red-outlined lettering, running across two pages and states, “Energy for a Strong America.” In a two-page spread by another oil company, Armco, a full page image of a drill rig is set next to large type that reads “Here’s a drilling rig that could keep your family warmer. Armco made it.”

Phase Four: Industry Response – The fourth phase, which begins around the election of Ronald Reagan, marks the low point in public concern for the environment (in the last thirty years) and a time when the executive is openly hostile to increased environmental protection (at least initially). Greenwashing, in concert with these changes, slows to a trickle. It is during this phase, in fact, that corporations permit themselves to be openly critical of environmentalists. Major environmental events occur but industrial

interests do not feel compelled to respond with much in the way of public lobbying as they had in the past (or they would in the future). The Three-mile Island scare, Bhopal toxic chemical spill, the Love Canal fiasco and the Chernobyl meltdown are three examples of catastrophic or near-catastrophic environmental issues that received a lot of news media attention.

During this period, Mobil Oil begins an advertorial-like campaign that is openly skeptical of environmentalists and environmental legislation. In one advertorial produced in 1984 entitled “Lies they Tell Our Children,” Mobil writes that environmentalists have infected the education system. As a result of this, children have become distressed and needlessly pessimistic about the state of the environment. The environment, they assert, is in much better condition than the environmentalists allow.

While it represents a fallacy in logic, Mobil’s approach – now appropriated broadly by business interests and their supporters – is an effective rhetorical tactic because it allows the company to publicly neutralize the claims of the environmental interest groups (who have up to this point become the political voice of the environment) without being explicitly anti-environment.

Unlike the first phase where concern for the environment was not particularly low, the industrial interests have, for the most part, collectively made the decision that green posturing is unnecessary. This may in part be due to the clear anti-environmental stance of the Reagan administration. Industrial interests may also have been emboldened by the public sentiment which laid the foundation for a Reagan Presidency. In any case, public concern for the environment remains low, the administration is openly adverse to environmental protection and greenwashing virtually vanishes.

One exception to the rule is the chemical industry, which begins to produce advertisements, perhaps in response to the accumulation of events in which it is culpable, including Love Canal and the Hudson River. One such advertisement, produced by America's Chemical Industry, shows a picture of a friendly man and asserts: "As a chemical industry engineer, I work hard keeping my community's air clean. After all, my grandchildren breathe it, too."

In a somewhat different vein, Dow Chemicals begins advertising near the end of this phase by reminding people of all the great things that chemicals do. These are not greenwashing advertisements; they do not mention the environment at all – although they do imply that Dow's principal aim is to end starvation. The campaign, which features full-page pictures of young adults just about to graduate college, repeats the slogan "Dow lets you do great things." DuPont chemical company follows Dow shortly after with a campaign that repeats the slogan: "Better Things for Better Living."

Phase Five: Heightened Awareness Again – While news media attention and public environmental concern rose through the latter part of the 1980s, the apprehension crests around 1990. Just as it did in 1970, a large oil spill again serves as the harbinger of a broad surge in media, policy and public attention to the environment. This time the specific issues of concern are different (deforestation in the Amazon, old-growth and clear-cut logging, species depletion, global warming and the ozone hole) but the responses in the various agendas are remarkably similar. The media runs saturation coverage of the environment. Along with this surge in attention, greenwashing and industry-sponsored advertisements increase as well.

Just as they did in the early 1970s, greenwashing efforts appear to take one of two general forms. One type of greenwashing is merely an exploitation of high public concern. Like Volvo and KitchenAid did before them, companies like GTE and Precision Tune produce full-page advertisements that make reaching or specious claims of their commitment to environmental concerns. The other is an attempt by industrial interests to diffuse rising public sentiment – although this time they are noticeably fewer than in the first period of environmental concern.

The Chemical Manufacturers Association runs a campaign under the slogan: “Responsible Care: a Public Commitment.” The advertisements feature the familiar picture of the globe with the words “Handle with Responsible Care.” Likewise the collection of forestry companies runs a series of advertisements that promote their caring stewardship of the forest. A picture shows an individual with a hard hat planting a tree. In large letters, the caption reads: “For us, every day is earth day.”

Phase Six: Return to Stewardship – The most recent advertising campaigns, which commence in the late 1990’s, are remarkably similar to the first greenwashing efforts produced by Weyerhaeuser and Georgia Pacific. This time, the petrochemical industry takes the lead, but the thematic purpose of their proposition is identical: We care a lot about the environment (so don’t worry about it).

Executive and administrative intentions during this phase are split and the policy intentions are less clear cut. In the early years, the Clinton administration is plainly supportive of environmental regulation; the Bush administration is, in terms of actual policy actions, decidedly less so. The Bush environmental strategy, however, does not openly endorse the policy actions he takes. Whereas Reagan was openly antipathetic to

environmental regulation, Bush has, for the most part, employed a sleight of hand in his administrations actions to reduce environmental regulation.

In reconciling the President's policy actions with his rhetoric, Kolbert (2004) concludes in *The New Yorker*:

The Bush Administration's singular contribution – if it can be called that – to the debate over safeguarding the planet has been the insight that, as with babies, the politician does not actually have to like trees in order to hug them. Even the most destructive proposals have been presented by the White House in the sunniest of rhetorical packages – the “Clear Skies” legislation, which would actually weaken provisions of the Clean Air Act; the “Healthy Forests” initiative, whose major beneficiary is the logging industry – and have come accompanied by blithe promises to, for example, “build on the remarkable air quality improvement over the last thirty years and do it in record time.”

In short, the Bush administration has changed the way in which the administration can be antagonistic to environmental protection – by themselves engaging in a type of greenwashing. In his first year in office alone, Bush earned “what the Sierra Club called ‘at least three dozen environmental black marks’” (Switzer, 2004, p.83), but he did so while publicly pronouncing his deepest support for conservationist ethic. At the same time, industrial interests increase greenwashing advertisements.

The patterns of the first phase are not repeated here but the greenwashing content in this phase is strikingly similar to the first phase. What appears to be happening is that the industrial interests strategy (as well as the administration) are actually adapting. In this way, it seems to be more of a collaborative effort on the part of the executive and the industrial interests to keep the issue from becoming a public concern and therefore an issue for the policy agenda.

The advertisements themselves do not overtly espouse a conservationist ethic as they did in the early 1960s, instead their pose is more broadly environmental. They do, however, include an identical infatuation with technology. Each of the companies makes a claim that technology has helped them produce cleaner-burning fuels. British Petroleum/Beyond Petroleum goes so far as to make the claim that one can be an environmentalist *while* driving one's car. The advertisement pictures an attractive and earthy-looking woman in a natural setting. The woman is quoted as saying "I'd rather have a cleaner environment, but I can't imagine me without my car." The advertisement responds that their fuels actually "help reduce ozone pollution." Toyota, whose claims are more credible, has recently run a campaign that features various pastoral settings and their new hybrid car. In one advertisement, the skid marks left from a Prius are green. The campaign runs under a slogan that emphasizes a technological fix: "Introducing a high performance technology that's good for the environment."

The Public as Target and Policy Objectives as Motive

What the above phases suggest is that this form of public lobbying not only appears to respond to the salience of environmental concerns but also to what can loosely be called an environmental and political mood or zeitgeist (Stimson, 1999). In appealing to the public ostensibly, however, it is often evident that the ultimate ends of these lobbying efforts are broadly or specifically political.

The efforts of the logging companies in the first phase of industrial greenwashing can be seen as an effort to stave off an increasingly regulatory federal government. Georgia Pacific, Wyerhaeuser and Potlatch are concerned about public perceptions, undoubtedly, but their ultimate aims may in fact be more motivated by the specter of the

Forest Service reducing the amount of public land they are granted. Switzer (2004) suggests that this was indeed the case. The lumber industry, according to Switzer, became increasingly sensitive to how public perceptions would invariably lead to increased regulation and less free land. Officials, Switzer writes, “within the pulp and paper industry began, in the late 1950s, to understand how desires for more recreation land would likely mean a call for reduction in logging activities and an expansion of wilderness area designations” (p.48).

The advertisements themselves are so unified in theme that it is hard to believe that the efforts were not coordinated. Georgia Pacific speaks about “perpetual harvest of fine timber.” Wyerhaeuser talks of a “never-ending supply of wood.” Potlatch refers to “self-replenishing timber reserves.” They all invoke the conservationist ethic – that forests are part of a public trust – that the wild lands should be preserved for future generations – but that sustainable logging can coexist with these objectives.

There was certainly ample reason for collective action on the part of industry. In the early 1960s, the federal government engaged itself in environmental protection like never before. Previously states and municipalities provided the hodgepodge of regulations. Forestry had been “regulated” by the Forest Service, but the arrangement was largely recognized as an “income producing agency” (Switzer, 2004, p.114). That arrangement grew increasingly controversial in the 1960s as it became increasingly obvious that effective environmental policy should be federal. Before 1960, the federal government had enacted two significant pieces of environmental legislation. By 1970, that number had jumped to 14.

Sometimes the policy objectives of the advertisements are much more open. In 1964 Wyerhaeuser runs an advertisement that claims “Your grandchildren will need the trees that we plant for the future.” In the ad, a forester shows a young boy how to plant a tree. Lower down in the ad, the advertisement openly claims that bad public policy is getting in the way of these needs: “because of these risks and costs, tree farming would be impractical under an unrealistic tax climate.” Wyerhaeuser has specific policy goals and it apparently aims to achieve them by way of influencing the public.

Another advertisement is equally as unambiguous in the way it invokes public values to achieve specific policy goals. In this case, the electric companies, now re-named the Investor-Owned Electric Light and Power Companies, are lobbying for a specific piece of policy action by appealing to resonant public values. A full-page picture of a bald eagle stares at the viewer. The title reads: “Vanishing American.” The advertisement copy then explains that federal encroachment into the power industry is endangering private enterprise in the sector. Just as it is un-American to watch the bald eagle become extinct, so is it to watch power companies struggle with regulation.

All of this suggests that industrial interests might be engaging in public lobbying as conflict expansion (or conflict contraction) rather than signaling as is proposed by the interest group literature. In specific, greenwashing advertisements appear to be a form of public address whose aim is manifold: the advertisements’ immediate purpose is to influence the public but the ultimate purpose is to direct policy action. But the evidence gathered here is descriptive and anecdotal. It bears further empirical investigation.

Signaling and Responsiveness

Beyond the descriptive evidence that doesn't square with expectations as laid out by the signaling model, there are also reasons of a more theoretical nature that raise questions about its broad applicability. In looking closely at the model – specifically what it presumes about public opinion, policy makers and the relationship between the two – I find that the expectation of signaling is optimistic, if not theoretically overreaching.

Kollman expects interest groups to signal public preferences on the following assumptions: that there is a causal link between opinion and policy; that public opinion, as it is measured and considered by elites, is a consistent and true measure of public preference; and finally that public opinion is exogenous from the definition of public problems by political interests. Each of these assumptions are, as I will argue, open for debate in political science. While this doesn't discredit the model outright, it opens avenues through which to examine its expectations and propose alternate prospects.

First, let's consider the premise that policymakers will depend on a reading of public opinion, prior to the policy action, to guide their decisions. Some theories of representative democracy support this view (Cobb and Elder, 1988; Page and Shapiro, 1992, for example). Current thinking in agenda setting research, however, is much less sanguine about the “democratic” influence of public opinion on policy making. Some normative theory would have us believe that there is a cause and effect relationship between opinion and policymaking but empirical research has not found much support for this belief. As Glynn et al. (1999) write, much of our research on public opinion and policymaking does not allow us to determine which moved first: “this leaves the direction

of any causal effect in doubt. That is, the correlation between opinion and policy could represent the effect of policy on opinion” (p.321).

Indeed some research, which uses a time series approach and is able to better account for cause and effect, finds public opinion to be much more peripheral to the policy making process (see Baumgartner and Jones, 1991, 1993, 2001; Carmines and Stimson, 1986, 1989). This research, which examines the evolution and dynamics of the policy process, finds that mobilized public sentiment is more reactive to policy making than the other way around. Baumgartner and Jones (1991), for instance, write:

Even when mass publics are involved in the issue expansion process, they often come into the process following elite debate and then generally respond to symbols generated during the elite conflict . . . By the time the conflict had been socialized to include the mass public, important policy decisions had already been made through the manipulation of image and venue among the institutions of national and local levels of government, far from the glare of public attention. (p.1050)

Conflict expansion does occur, according to contemporary research, and it does include the public, but in contrast to the signaling model, it is seen as following institutional policy decisions. When the public becomes involved in problem definition, this research suggests that the problem has already been defined and largely resolved by policymakers. This is not purely an elitist argument either. As Lee (2002) contends in his thorough analysis of the mobilization of public opinion in the civil rights struggle, public opinion can indeed be driven by a “bottom up” dynamic, but even in this scenario public opinion was activated by an insurgent social movement – a collection of interest groups.

The vision of the public as prescriptive is also at odds with classic theories of how policymakers use public opinion. V. O. Key (1961) writes, “mass opinion may set

general limits, themselves subject to change over time, within which government may act”(p.97). Key expresses the idea that the public acts as a constraining force on policymakers, or sets limits on what is permissible, rather than acting as a prescriptive force. As such, public opinion on any specific public issue is a consideration that must be heeded by those making policy, but it does not, contrary to the signaling model, direct policymaking.

With so many issues on the policy agenda at any one time, the public cannot be expected to understand each and every issue. Evidence suggests that as a whole they attend to a much more limited set of issues (Jones and Baumgartner, 2003). Perhaps more to the point, on the vast majority of issues that are on the agenda, where salience is relatively low, the policymakers tend not to think of public opinion as particularly set on the issue one way or the other. As LeoGrande explains, this was the White House’s perspective when it came to supporting the contras in Nicaragua:

Public opinion was consistently opposed to the Reagan administration’s policy of aiding the Nicaraguan contras, yet the administration pursued it doggedly throughout the decade and the Congress supported it to one degree or another from 1982 to 1984 and again from 1985 to 1987. Both Congress and the executive could afford to be unresponsive to public opinion because the issue never achieved a high enough level of salience for the mass public to focus on it (in Glynn et al., 1999, p.13).

Jacobs and Shapiro (2000) offer a contemporary if less optimistic view of the dynamic articulated by Key. They argue that politicians have become increasingly dependant on the public opinion survey, but not for the reason of guiding policy as common belief holds. Rather, Jacobs and Shapiro argue that politicians use measurements of public opinion to “craft” their talk in pursuit of their own (and often

more extreme) policy goals. According to this theory, political figures use polling to manipulate the public rather than pandering to it. In conjunction with Kollman, the authors write that Washington elites treat “public opinion as a political resource to pressure policy makers”(p.103). However, their motivation for using it is “neither to follow it in making decisions nor to accept it as it existed. Rather, they traced public opinion after deciding on what they wanted to do; their purpose was to exert the ‘leadership skills to shape public opinion’ and ‘educate people’”(p.103). According to this way of thinking, elites use public opinion data to craft language, arguments and symbols to support their policy decisions. Jacobs and Shapiro argue that this was certainly the case in the White House:

Carefully crafted public presentations or (in White House) jargon “communications” and “message” development were latched on to as the means to “educate the public” and secure politically vital support. In effect, the White house aimed, as Clinton’s political consultant Mandy Grunwald put it, for a “bank shot” off the public and into Washington: their strategies to “portray,” “fashion,” and “spin” Clinton’s plan were expected to mobilize public support and in turn enhance the White House’s leverage with Congress and interest groups. (p. 105).

The bank shot that Grunwald aimed for is in one sense not that different than the signaling model: public support for a policy is being used to motivate policy makers. Unlike the signaling model, however, public opinion isn’t so much signaled as it is crafted and manipulated to achieve what policy makers consider better policy.

Signaling and Public Opinion

Another fundamental assumption of the signaling model is that interests can ascertain some true level of public preference on policy issues. In Kollman’s own words, “there exists “some ‘true’ level of popular support that the interest group either represents

or is trying to skirt” and that this “assumption is not only plausible but absolutely central to any argument about the effectiveness or worthiness of outside lobbying” (p.81).

Even if we maintain that the public can have long-standing preferences (see Jones, 1994, 2001), current theories contend that opinion as expressed and measured at any one point in time can fluctuate as different preferences are attended to. In short, people can possess long-standing preferences, but public opinion – especially as measured by surveys – appears capricious because contextual cues elicit different (and inconsistent) preferences, leading to different evaluations over time. The idea that interest groups can determine a true level of popular support, after all, is built not only on the conviction that “true” opinion exists, but also that it is measurable. This is doubtful.

Some recent scholarship in this area indicates that, consistent with the signaling model, policymakers do depend on the media and interest groups for readings on public opinion (Herbst, 1998). On the other hand, they do not generally appear to accept any picture of public opinion prior to policy action as particularly valuable (Jacobs and Shapiro, 2000). Public opinion for the policy maker and interest group is a prospective enterprise. Theories of rational public behavior are, in contrast, based on retrospection. They are intricate arguments that depend on being able to measure aggregate time series data, after-the-fact analysis and issues of relatively high salience. Policymakers faced with a decision are more likely to think of public opinion as unpredictable or manageable than true or definite. Quoting a White House official, Jacobs and Shapiro (2000) write, “‘you can’t be a slave to what polls say’ because the public is not sufficiently knowledgeable on a wide set of issues The problem with public opinion surveys is

that ‘people [do not] understand what it is they’re being asked to vote for or against in a poll’” (p.102).

Construction of Public Problems

By excluding the possibility of interest groups influencing the public, Kollman isolates the public from problem definition and the influence of political power. Both of these appear to be unreasonable.

Public problems are (at least in part) socially constructed (Best, 1981; Berger and Luckmann, 1967). Which issues we pay attention to – at the expense of others – and how we define those issues are not reflections of objective conditions; they are more accurately a reflection of media discourse (Gamson and Modigliani, 1989), institutional definition (Baumgartner and Jones, 1991, 1993) and power structures (Schattschneider, 1960; Bachrach and Baratz, 1962; Gaventa, 1980). Lawrence (2000) outlines this so-called social-constructivist position succinctly:

What qualifies as a “problem” for any given society on any given day may have less to do with the objective breadth and depth of problematic conditions in society than with the things people are paying attention to and how they are perceiving them. What becomes understood as a problem—a societal condition that people believe is unacceptable and should be addressed with new or invigorated public policy – can depend upon what perspectives on societal conditions are highlighted in the news. (p.4).

Any notion of a “true” public preference that is resistant to influence seems artificial and theoretically idealistic. How, one might reasonably ask, did the public come to share this opinion on the issue in the first place if not – indirectly or otherwise – from those whose political objectives depend on how the issue is defined? The media surely play an intermediary role, but it’s hard to conceive that interests don’t devote resources to

this effort. The signaling model, to be clear, does not address this question directly. But by limiting expectations of outside lobbying to all but the final stages of the public policy process it leaves vital questions unresolved.

As Stone (1997) argues, models of policy making that are too dependent on orderly and logical processes, what she calls the production model, have lost sight of the fact that the policy process is at its core political. Her criticism seems equally applicable to the oversight of the signaling model:

The production model fails to capture what I see as the essence of policy making in political communities: the struggle over ideas. Ideas are a medium of exchange and a mode of influence even more powerful than money and votes and guns. Shared meanings motivate people to action and meld individual striving into collective action. Ideas are at the center of all political conflict. Policy making, in turn, is a constant struggle over the criteria for classification, the boundaries of categories and the definition of ideals that guide the way people behave. (p.11)

If policy making is deliberative as Stone argues, where policy outcomes are at least in part dependent on the evolution of shared meaning – amongst the policymakers and the public – then the signaling model appears to short circuit the process. By removing the public from the struggle over ideas and conflict expansion, the signaling model segregates the public from the heart of the political process itself. Strategic framing, and especially image-based framing, seems more applicable to this vision of policymaking. Images of a devastated Prince William Sound and birds covered in oil or a video-taped image of LAPD officers using what appears to be excessive force on a black man on the side of a highway can vividly and convincingly present the sort of “criteria for classification” that Stone sees as the center of policymaking.

The net result is that the signaling model is at odds with fundamental theories of the politics of the policy process and the exercise of political power. Excluding the public from this creation of meaning, asserting that public opinion is exogenous to political influence and concluding a causal opinion-policy linkage has a reassuring normative ring to it, but it doesn't square with what we understand about the exercise of power in political systems. The signaling model proposes that public opinion is exogenous (p.10). In fact, the power, theoretically speaking, of signaled public opinion is that it is a true expression of public sentiment removed from political influence.

Schattschneider (1960) reminds us that power in politics translates into the ability to control which issues are attended to and largely how we perceive them. Politics, he writes “deals with the domination and subordination of conflicts . . . Some issues are organized into politics while others are organized out” (p.65, 71). Bias is built into the political structure and power *is* the ability to define how the public and other policymakers perceive the problem. Bachrach and Baratz (1970) further contend that politics goes beyond the actual political decision. What happens before the signaled opinion, to transpose their argument somewhat, is just as much a part of the political process and influence as the immediate decision itself. And political power is such that demands can be “suffocated before they are voiced, or kept covert” (p.10).

What we are left with is disagreement over who influences whom in public lobbying campaigns. Interest groups, according to the signaling model, go public in order to direct the attention of policymakers to the true levels of popular support. But these expectations do not fit with a great deal of research on the policy process and public opinion. Furthermore, empirical reasons – namely greenwashing campaigns like the one

undertaken by General Electric in May 2000 –question the broad applicability of the signaling model.

If interest groups can influence the public in an attempt to achieve policy ends—and the theoretical and empirical evidence above suggests that they can – the signaling model cannot account for it. We must look elsewhere to explain what is happening.

Strategic Framing as Influence

General Electric spent a lot of money, in the words of one of its spokespeople, “to ensure that the public had a balanced view, and had access to information that would not have been presented” (Jochnowitz, 2001). The quotation is anecdotal, but it betrays an effort to influence the public in some capacity.

For obvious reasons, General Electric had been lobbying to mitigate its legal obligations to clean up the PCBs in the Hudson River. The expected cost, for one, has been estimated between \$450 million and nearly a billion dollars. As an EPA deadline to render a decision closed, it appears that General Electric’s strategy was to influence the EPA through its public advertising campaign.

Assuming for the moment that the public was in fact supportive of a river cleansed of dangerous PCBs, General Electric could have achieved their objective (publicly) in one of two ways. First, they could actually influence public opinion through their advertising campaign and rely on the public to pressure policymakers to oppose dredging; or second, they could just give the policymakers the impression that public opinion was in favor of not dredging. In the first condition the public is truly influenced in the second, it appears to be (the so-called third person effect). In either scenario, policymakers believe that public opinion is against dredging and a method of outside

lobbying occurs that is not accounted for by the signaling model. We are left, in any case, with an empirical question: what are political interests communicating to other elites and the mass public itself if they are not merely signaling latent opinion.

Instead of signaling, I hypothesize that strategic framing is a better theoretical explanation for understanding public lobbying efforts by political interests. Although there is a broad array of research that appears to point in this direction, it has yet to be brought together as a theory of political influence. Baumgartner and Jones speak of pervasive “policy images,” Zaller (1992) and Page and Shapiro (2000) use the concept of priming and Jones (1994) bases his argument on shifting attention and preference activation. Although the words are different, there is notable consistency in what they conclude about political decisionmaking and by extension influence: people are limited in what they can attend to; short term memory is such that we are restricted in how we can evaluate a decision at hand; for the most part, people are so disinterested in politics that these evaluations can appear inconsistent; the more salient an issue, the more opinions tend to become consistent; en masse, opinions on issues can appear static for long periods of time but then shift rapidly.

Jacobs and Shapiro refer to the crafted communications used by Washington elites, for instance, as priming. Priming, a term derived from social psychology, refers to the psychological process by which emphasis on a particular object raises the salience of that object for the recipient. Fiske and Taylor (1984) write that priming is a phenomenon where prior context affects the retrieval and interpretation of information: “recently and frequently activated ideas come to mind more easily than ideas that have not been activated” (p.231). Social psychologists developed the idea in their attempts to explain

how people make decisions. Jacobs and Shapiro extend the concept to apply to strategic manipulation by political activists (p.369). By raising the salience of a particular view of an issue, politicians can actively change the way that people evaluate policy issues. By sheer repetition of a particular perspective, politicians prime a specific evaluation.

Together priming and the rest of the research underscores a basic point that is applicable here: most political influence is not a matter of persuasion, but instead a shift in how people evaluate public problems. Changing one's mind about political matters is more a function of which schema (or attitudes or belief networks, or values) that one considers relevant to the decision and perhaps how they perceive others as understanding the problem.

Framing is defined as calling attention to some aspects of reality while obscuring others (Entman, 1993, p.55). Both priming and framing describe similar but not identical psychological processes. Both in some way suggest that an individual can be influenced without changing beliefs. Priming is simply the raising of salience of a particular word, concept or idea. Framing, however, denotes a limited capacity of conscious attention and especially problem evaluation (Goffman, 1974). Framing just as readily refers to message creation by the communicator, as it does to the encoding and retrieval of information by the recipient. Priming, too, has been used for this purpose (Iyengar and Kinder, 1987; Zaller, 1992; Neuman, Just and Crigler, 1992) but strictly speaking, it has more narrow application as a cognitive process, specifically to the encoding of information by the recipient (Fiske and Taylor, 1984).

Nelson and Kinder (1996) contend that frames and primes are quite distinct psychological processes. Frame-induced changes in preferences, according to Nelson and

Kinder are induced more by evaluative importance than accessibility. Frames, they write, “alter the *weight* or *importance* attributed to certain considerations (such as group attitudes) while making other, equally accessible ideas, seem less consequential . . . All of this could be accomplished without affecting the accessibility of these concepts in memory” (p.1073). Furthermore, framing adequately accommodates for the so-called third person effect. A policymaker, for instance, who may be convinced to change his vote on a decision to dredge a river because he believes public sentiment has shifted irrevocably in that direction is doing so because of a pervasive frame and not just because he was primed to do so.

Framing fits well with other research on public opinion, political behavior, agenda setting and the policy process. Strategic framing is not inconsistent with the idea that people are largely disengaged from the political process (e.g. Zaller, 1992), and cognitively limited (e.g. Popkin, 1992 or Jones, 1994). At the same time, it does not contradict the theory of aggregate rational behavior (Page and Shapiro, 1992). Strategic framing, moreover, operates within the constraints of journalistic norms, values and rituals (Tuchman, 1974; Gans, 1979) and is more efficient means to shift opinion than persuasion (Jacobs and Shapiro, 2000). Framing is consistent with agenda setting research that finds both long-term stability and rapid change (Baumgartner and Jones, 1991, 1993; Kingdon, 1995) and finally, it provides a means by which political power can extend beyond the policy network itself into society.

Notwithstanding these theoretical advantages, framing has not, remarkably, received much if any attention as a means of explicit political influence or public lobbying (cf. Jacoby, 2000). Conventionally, framing research examines the frames used

by the news media (Gitlin, 1980; Nelson, Clawson and Oxley, 1997; Nelson, Oxley and Clawson, 1997; Lawrence, 2000) – that is, framing in the media. What is missing in political science and communications research is an examination of strategic framing or, framing *through* the media, similar to the notion that sociologists have accepted for some time (Gamson and Modigliani, 1989; Cress and Snow, 2000; Ryan, 1991). I propose to do this, then, by way of examining the modal effects in public lobbying.

Images and Frames

From Baumgartner and Jones (1991, 1993) we know that popular understanding of policies go through long periods of stability, but that change, when it comes, tends to be quick and dramatic. Public discourse, they argue, tends to remain devoted to one perspective on an issue to the exclusion of all others. Frames, in other words, tend to be durable over time, but also have the capacity to change quickly. Likewise, Lawrence (2000) argues that the sudden and intense attention to an event can shift perceptions of the issue in the press, public and among the policy makers. Especially when, like in the case with the Rodney King beating, the event highlights in a dramatic way an alternative to what was the erstwhile and official frame, the problem can be redefined in a new way that was otherwise unlikely.

Molotch and Lester (1974) likewise find that an accident like an oil spill can upset the routine gathering and reliance on elites for news, resulting in momentary subversion of official sources and their frames. They write that accidents transcend “the normal scheduling of events and the routine mobilization of bias which characterizes the extant social organization of news” (p.258). Events, according to Molotch and Lester, create the opportunity to subvert the standard frames that are part of the mobilization of bias.

Frames do not exist out there in an open marketplace of ideas. Some are organized into public affairs discussions, by sources, through the media and amongst the public, and some are organized out. Accidental news events provide opportunities to re-frame a public problem, possibly in ways that are subversive of the current power structure. In the wake of these events, journalists turn to alternate sources in part to fill the need for information, but in part because they are permitted to. For a time, because of the event, journalists bring “critical societal voices into the mainstream” (Lawrence, 2000, p.165). The event, which highlights a new societal problem, makes it non-controversial for journalists to bring in sources that they otherwise could not. Lawrence (2000) argues that the event permits new sources, for a time, the opportunity to redefine the public problem.

What is overlooked and understudied is the visual component of these events. In each of the cases above: the Rodney King beating; the Mobro barge fiasco; and an oil spill off Santa Barbara, images helped provide this new perspective, they told the story from these emergent frames. Lawrence (2000) contends that the presence of organized and powerful voices ready to redefine the public problem is necessary to construct a new perspective on our public problems (p.166). This is no doubt true, but what gets overlooked – what usually gets overlooked – is the impact of the images themselves.

In each of the examples above the images could have provided an important instigation to reframe the public problem. Certain images make visually evident, or appear to make evident, the fallacy of the old perspective. Notwithstanding what we appear to know about the subjective nature of images, we interpret photographic evidence as truth because it approximates how we experience the world (Messaris, 1997). The

widely viewed (and selective) footage of Los Angeles police officers using what appeared to be brutally excessive force to detain a black man who didn't appear to be fighting back made a clear case to a lot of people – or at least it appeared to. Seeing is for many people believing. Images can provide evidence of a new problem or a new way of viewing an old problem in a way that words have difficulty matching.

Obviously, images in and of themselves cannot redefine problems or shift the policy images. As Lawrence (2000) argues, it takes a well-organized group of non-officials and critical voices to lead the charge. Not that images of crude oil spilling over a beach and covering birds and seals need much interpretation, but what does is who is at fault and why.

The power of images to influence the mass public, though not widely upheld in social science research, is commonly accepted as truth. Communications textbooks assert that the photographs and motion pictures produced by the Farm Security Administration were successful in helping to pass New Deal legislation for Roosevelt (Lester 2003, p. 228-29). The images were commissioned by the FSA to depict rural and urban people struggling to survive during the Great Depression. It is argued that pictures such as Dorothea Lange's "Migrant Mother," reproduced in newspapers and nascent photo-based magazines like *Look* and *Life*, were so emotionally charged that they influenced how the mass public thought about the dispossessed and therefore about legislation aimed at helping them. The understood implication is that pictures had an impact that words could not (p.227).

Likewise, images of police brutality in the streets of Birmingham in 1963 are often cited as the turning point in the struggle for civil rights. Eugene "Bull" Connor, the

police chief of Birmingham was known to be exceptionally intolerant and violent in his treatment of demonstrators. Civil rights leaders chose Birmingham as the venue for protest for this reason. They hoped that rough treatment by Connor would provide a graphic display of repression and thereby focus public attention on ending segregation. Some evidence suggests this was the case. Prior to the demonstrations, Gallup polling indicated that only 10% of the population thought civil rights was the nation's most pressing problem. In July, 1963, following the demonstration and more importantly, widely published images of demonstrators being attacked by police dogs and bowled over by fire hoses, nearly 50 percent of the sampled American public cited civil rights as the most important problem facing the country (Kernell and Jacobson 2003, p.123).

Yet, there is little systematic evidence to support these assertions in the empirical social science literature. With the exception of a few pioneering studies in mass communication largely in advertising, the visual dimension of political influence has not been adequately studied. Some leading political communications scholars have looked at the impact of images on the audience, although only cursorily (Graber, 2001; Livingston and Eachus, 1995; Neuman, Just and Crigler, 1991, 1992).

Some of their findings are consistent with my contention. Neuman, Just and Crigler (1991, 1992) observe that the visual element of news coverage has the effect of providing visual proof of dramatic issues (p.58). Similarly, Graber (2001) finds that photographs have particular strengths in communicating meaning to the audience. Pictures, Graber writes, excel in their capacity to provide "tangible evidence to citizens about major problems and possible solutions" and provide an emotional connection unavailable in text (p.74). Graber, however, disputes as spurious the notion that because

of this greater propensity to arouse emotions pictures derail communication. Emotions and cognitions, Graber writes, are symbiotic. The “gut feelings” that may be aroused through visual communication are crucial in decisionmaking. Consistent with the framing hypothesis, Graber argues that visual messages “contain symbols that tap in to the audience’s stored schemas” (p.71).

Likewise, Lee (2002) argues that mass response to the civil rights movement was not driven by elites, but rather altered and activated by exposure to protests like the march from Selma in 1965. Although Lee doesn’t speak of images directly, my argument is entirely consistent with his theory.

Certainly, the image-heavy outside lobbying efforts by interest groups indicates that advertising and public relations practitioners believe that images are an integral component to influence. Still, research on the influential capacities of images is remarkably slim. The visual dimension of political influence has not been adequately examined. The reason for this is not surprising. Images are infamously difficult to analyze empirically. The ambiguity of photographic meaning and lack of structured syntax makes content analysis very difficult.

Emerging studies in advertising literature contend that images are uniquely influential – especially in the way that they can establish context and salience (Beasley and Danesi 2002; Messaris 1997). Messaris, for instance, argues that pictures can have strong effect on how we construct meaning. First, pictures present visual or photographic proof of whatever it is that they are showing. Second, because pictures mimic visual experience, they can play off the same preprogrammed and strong limbic responses with which we respond to visual stimulus in our everyday experience. Finally, images offer

implicit causal or analogical associations that allow for more personal construction of meaning.

On the other hand, some research maintains that images are incapable – by themselves – of influencing the public. The influence of the photograph, according to this theoretical position, is something that is constructed subsequent to the appearance of the picture. Perlmutter (1998) contends that photographs do not actually influence. Instead photographs are imbued with meaning after the fact and in some cases become “icons of outrage.” Instead of the picture constructing some meaning within the public the opposite actually occurs. Events that follow the publication of a photograph influence our understanding of that image. Meaning is ascribed to the photograph after the fact.

Purpose of Study

This dissertation will address the relative explanatory power of the signaling and framing models with regard to environmental issues in general and greenwashing in particular. Using both aggregate and individual-level analyses, my aim is to provide some empirical understanding of the questions raised at the beginning of this chapter. In part, the dissertation will examine the extent to which photographs and text influence environmental agenda salience in the interaction of interests, the media, public, and policy makers. This will be an aggregate-level examination of the causal effects that environmental images and text have on policy action and public concern. I will also investigate the extent to which text and photographs used in a specific greenwashing campaign are capable of actually influencing policy preferences. For this, I will examine individual-level response to public lobbying advertisements.

My objective, therefore, is to throw some empirical weight behind either signaling or framing in examining how text and photographs influence salience and preferences with regard to the environment. The two research questions I will explicitly answer in the remaining pages are:

- (1) What influence do the news media's photographic and textual agendas have on the salience of environmental concerns in the public and policy action in congress? If the photographic and textual agenda both influence public and policy salience, do the modalities have different (or identical) effects on the salience in policy action and public opinion?
- (2) Are there discrete framing effects within advertising messages – that is, are opinions affected by text, images, or some combination of both?

Chapter 2 -- Literature Review

The purpose of this dissertation, broadly stated, is to examine whether political interests signal opinion or strategically frame public problems in an effort to influence policy. Specifically, I aim to uncover the effects of modalities – photographs and text – in the construction of environmental issues. The questions I ask are of equal import to both mass communications and political science research. In order that I may build on (and contribute) to theoretical development in political influence, I will dip my bucket deep into the literature of both disciplines. Only this way can I provide a foundation from which to understand and ask the right questions.

My review starts with the theoretical question of whether signaling or framing more accurately explains political influence. I will begin by looking at literature on power in politics, the structure of policy systems and the dynamics of policymaking. This will set the stage – normatively and empirically – for what is to follow by grounding the examination in the political systems that ultimately create policy. I will then look into how these systems and dynamics play within the larger societal construction of public problems by reviewing research on media agenda setting, public opinion and their effect on policy. Next, I'll survey findings more plainly central to the study of political influence: including framing, information processing and political decisionmaking. With this groundwork laid, I finish off the review by offering an argument, based on a diverse collection of literature, that images can provide interests with strategic frames from which they are able to re-frame public problems.

Power and Public Problems

An overview of research on distribution and application of power in democratic systems is a good place to begin an analysis of how problems are collectively perceived and dealt with by the institutions of government. It poses the broad normative theoretical questions of what is to follow, namely to what degree is the competition of interests really free and open and how do these groups reflect the interests of the mass public. Further, an examination of power and powerlessness sets the stage for the empirical domains that must be addressed.

Some sociologists such as Mills (1956) find evidence that power is concentrated amongst social, economic and political elites. Increasing centralization in government, military, the corporation and capital in conjunction with the commonality of elite job demands, which has the effect of coalescing elites as an interconnected and uniform group, focuses power in the homogenous elite and diffuses it in the disconnected masses.

Mills writes:

The top of the American system of power is much more unified and much more powerful, the bottom is much more fragmented, and in truth, impotent, than is generally supposed by those who are distracted by the middling units of power which neither express such will as exists at the bottom nor determine the decisions at the top. (p.29).

Political scientists such as Dahl (1961), who fall into the pluralist camp, take issue however with both the elitist method and assumptions. Dahl argues that it is not enough to make conclusions about power based only on the potentialities of reputation, resource and status. If we are to empirically examine power in democratic systems, he contends, we must observe the actual employment of power. Dahl's solution is to examine

decisions – specifically, who makes political decisions in New Haven, Connecticut. Dahl finds that decision-making power is broadly distributed and narrow in scope when it is concentrated. For example, in New Haven, the decision making process involved a number of interest groups. Some groups had focused control over their particular issues; others had control over others. Because of this Dahl claimed that even though there may be concentrated pockets of power, no one interest dominates the decision-making process.

Control of political decisions is both fleeting and fragmented. Because diverse groups hold concentrated power in distinct areas, power is issue based – not centralized. Dahl reasons that people in positions of power are responsive and that actual decision-making power is widely distributed. Electoral competition compels decision makers to survey (at least) all groups in compiling the coalitions necessary to govern in an environment with diverse resources, thereby assuring every community interest an equal measure of influence. There may be systemic inequality in political participation, but for Dahl this is irrelevant, because groups in the political stratum represent their interests and because of the electoral pressure to anticipate the demands of groups.

But as Crenson (1971) and others have argued, there is inconsistency in concluding that power exists only in so-called “key” decisions. The ability to control the political process, “to make it impenetrable in certain respects – is not revealed by the investigation of political activities in key issue-areas because the issues in which this kind of power is likely to be significant are precisely the ones that never become ‘key’”(p.21). Power is not just manifest in decisions and observable conflict. Conflict can be limited by and decisions precluded by those who possess power. As Schattschneider (1960, p.105)

writes, “whoever decides what the game is about also decides who gets in the game.” By limiting his conception of power to observable political decisions, Dahl limits power to only the sort of power that is exercised in observable conflict – the tip of the iceberg. By doing so, Dahl excludes some of the most potent aspects of power, where problems and issues are excluded from the process and people are prevented from participating.

Bachrach and Baratz (1962) argue, in contention with Dahl, that power has two faces. More important and less evident than the concrete decisions made by persons or associations are the non-decisions proscribed by it. Of course, they write, it is easy to see that A exercises power over B by making decisions that affect B, but “power is also exercised when A devotes his energies to creating or reinforcing social and political values and institutional practices that limit the scope of the political process to public consideration of only those issues which are comparatively innocuous to A” (1962, p.948). Schattschneider refers to this structure as the “mobilization of bias.” All forms of political organization, he writes, “have a bias in favor of the exploitation of some kinds of conflict and the suppression of others because organization is the mobilization of bias. Some issues are organized into politics while others are organized out”(p.71).

The signaling model, along with other pluralist perspectives, contends that political structures are “vulnerable to almost all the demands, discontents and issues that private citizens choose to thrust upon them”(Crenson, 1971, p.23). Governmental decisionmaking, in other words, does not exhibit a mobilization of bias other than the political climate of the time and the will of the people. The public defines and recognizes problems and brings them to the attention of the decisionmakers. But in his analysis of air pollution and municipal politics, Crenson (1971) finds that this is not the case. Even if

community power structures are less homogenous and centralized than the elite model predicts. Bias, according to Crenson, still pervades the scope of political decisionmaking. Even though a polity may be pluralistic in apparent constitution, they still restrict political decisionmaking to “acceptable” issues – and much of this pressure is applied indirectly:

The citizens of a community will probably tend to frame their demands in such a way as to achieve a good political reception. They will often adapt their request to the presumed inclinations of local political institutions and political leaders, perhaps omit some requests altogether. . . . In short, there is something like an inarticulate ideology in political institutions, even those that appear to be most open-minded, flexible, and disjointed – an ideology in the sense that it promotes the selective perception and articulation of social problems and conflicts. . . . (p. 23).

Crenson’s idea of an inarticulate ideology of political institutions joins well with the ideas of socially constructed problems and with the hypothesis that political players engage in strategic framing to achieve their political ends. The perceptions of social conflicts and problems are not random or open to any interpretation – they are selective and restrictive. This extends Schattschneider’s mobilization of bias beyond the structures of political institutions to the more diffuse and implicit regions of social and political climate. Along with certain political structures, cycles, parties and organizations there are commensurate ideologies that influence what is organized in and what is organized out: what are the limited range of issues that are acceptable at the time.¹⁰ As Crenson himself argues, people will “tend to frame their demands in such a way as to achieve a good political reception” (p.23).

¹⁰ There is nothing inherent within framing that creates a problem for pluralist approaches. If a system is truly pluralist, and everyone has equal access to the resources in which to frame an issue and can use them with equal skill, then framing can not be construed as a means by which elites or a particular structural bias restricts the construction of public problems. It is worth noting, however, that this significantly broadens the definition of pluralism to include the capacity to frame.

Political power, whether the structures of government are loosely associated, permeable and pluralistic or tightly held and elitist, extends beyond the formal policy making bodies. Gaventa (1980) and Lukes (1974) elaborate on the ideas of Crenson (1971) and Bachrach and Baratz (1962) by arguing that powerlessness is perpetuated within the consciousness of those who are dominated. Cultural explanations and the social constructions of meaning are an extension of the power relationship that exists within institutional politics. By defining which problems we look at (mobilization of bias) and then, how we look at that problem, elites are capable of avoiding overt decision-making conflict.

If the first dimension is the power evident in manifest decisions, and the second dimension of power is the mobilization of bias that exists within any power structure, the third dimension of power is a process by which power is exercised within the social construction of meaning. In this way A is able to exert power over B – to influence B to act in a manner that he might not otherwise, without B even being aware of his quiescence. The third dimension of power is the shaping of the dominated mind through myths, control of information and ideologies.

Political scientists at least recognize that political power extends beyond the structure of political institutions, but for the most part, it has largely averted its analytical gaze from an examination of how that power is exercised. This is in no small part due to the fact that mass communication and the media have conventionally been seen as beyond the traditional political institutions (c.f. Cook, 1998). Beyond pointing out that certain factions dominate, that an “elite” maintains control over the masses or that it doesn’t, that some questions are excluded from political debate or that the non-elite can

mobilize the public, there is select systematic investigation in political science of power relationships beyond the structures of government and there is nothing that I can find that pursues the question from a visual perspective.¹¹ Gaventa (1980) maintains that myths, information control and ideologies are the means by which the powerful control the quiescent, but the analysis of how or where that control is communicated is primarily found in communications literature.

Political Power Communicated

Edelman's (1960, 1964, 1971, 1988) work on symbolic politics is of course one notable exception. And even though it provides, in addition to refining a theory of how political power is communicated, support for the argument that political players strategically frame their appeals to the public in order to achieve their policy ends, it still does not provide a detailed explanation of the role of media in maintaining existing power relationships (Entman and Rojecki, 1993). Edelman (1964) argues that elites can exert power over the masses – inspire arousal or quiescence – by using symbolic language. Communication, in other words, provides the means by which power is extended beyond the decision-making institutions and into the social construction of meaning. But for Edelman these are inextricable: what we want for ourselves and how we perceive political issues are both part of the same system of meaning construction. Politics and identity are intertwined as part of a single system and extension of political power:

The very question of what man *is*, let alone what he wants, is in part a product of the political system, and in turn conditions the system. The

¹¹ Obviously Gitlin (1980) and Hallin (1986) are excellent and thorough accounts of how media maintain existing power relationships. Some other examples include Molotch and Lester (1975) and Entman and Rojecki (1993).

nature of man and the functioning of the system are part of a single transaction. The expressive and symbolic functions of the polity are therefore central: not simply a blind for oligarchic rules, though they may sometimes be that too (Edelman, 1964, p.19).

Meaning, for Edelman, specifically refers to how we order experience: it is “associated with order – with a patterned cognitive structure that permits anticipation of future developments” (p.31). Edelman contrasts information with meaning. Information can be thought of as non-redundant facts or denotation. Meaning refers to shared conceptual notions of order – signals and configurations that “emerge through the exchange and mutual creation of symbols that amount to abstractions from a background of other possible meanings” (p.33). Both co-exist in communication but are mutually exclusive.

It is meaning, according to Edelman, that forms the basis of peoples’ political beliefs, perceptions and expectations. Information doesn’t mobilize people – what the event or issue *means* does. The perception of peril is fueled by expectations that one has been socialized into. That sense of order, that sense of where one fits and what one expects from the current system, is what can arouse or quiet large groups of people. Meaningful cues are powerful because they “develop and are mutually reinforced in large collectivities of people, evoking intense hopes and fears, threats and assurances” (p.2).

To put it another way, meaning refers to how we collectively frame experience, or our commonly accepted ideologies, our schemas or beliefs about issues, events, problems and conditions. Meanings are socially constructed as part of the same system in which we’ve constructed our wants and identities. Symbolic language communicated through the mass media, Edelman (1971) argues, exploits and manipulates these expectations in

order to inspire arousal or acquiescence. Most people, Edelman argues, do not rely on observation or empirical evidence, but on shared implications and cues from others that imbues current situations and anticipated events. Political elites can arouse a mass public intentionally or otherwise by way of threats to their status (race, caste, gender, nationality, etc.). This sort of communication is symbolic because the perception of peril or safety is fueled by expectations of one's socialized sense of order, not a reasoned analysis of self-interest. Symbolic cues are powerful because they “develop and are mutually reinforced in large collectivities of people, evoking intense hopes and fears, threats and assurances” (p.2).

Zaller's Receive-Accept-Sample (RAS) model likewise proposes a theory of opinion diffusion that operates through the media. Zaller theorizes that people are so politically inattentive that elite discourse tends to largely proscribe their opinions on political issues that they report in survey answers. This is not inconsistent with the idea that people may have enduring beliefs and values – just that political issues are not attended to (with the specificity that surveys presume) and therefore political preferences for specific issues for most people can not be said to be articulated or consistent. The opinions of elites, carried through the media, “enable citizens to form conceptions of and, more importantly, opinions about events that are beyond their full personal understanding” (p.14). Some people are sophisticated enough to mirror the valenced information of sources whom they trust. Others are so ill informed that their opinions are little more than the most salient consideration. The least politically attentive will offer inconsistent opinions because what comes to mind is a hodge-podge of uncritically internalized ideas. Zaller writes that “most people on most issues are relatively uncritical

of the ideas that they internalize. In consequence, they fill up their minds with large stores of only partially consistent ideas, arguments, and considerations” (p.36).

In either case, public opinion as measured by survey responses, is nothing more than an inconsistent sampling of elite discourse. Survey responses, Zaller writes, “are a function of immediately accessible “considerations,” where the flow of information in elite discourse determines which considerations are salient” (p.36).

But as Lee (2002) argues in his analysis of black insurgency in the struggle for civil rights, we have grossly simplified the complexity of public opinion (and political power) if our theoretical understanding is principally – if not exclusively – that elite actors are the shapers of public opinion. Lee finds that public opinion is activated both from the bottom up as well as from the top down. By showing that movement-based efforts (non-elite) and not partisan based efforts (elite) shaped people’s views of the racial struggle and mobilized them, Lee contends that the elite model falls short in the specifics to account for, in some contexts anyway, the dynamics of public opinion formation.

Lee’s analysis of a social movement broaches a debate in political science and a distinction that proves central to the objectives of this dissertation. In our efforts to explain how power is exercised, political scientists have tended to focus on who exercises power rather than how that power is imposed. Political science, as evidenced by the distinctions being drawn by Lee (2002), directs its gaze to the political actors and not the dynamic relationships, access and influence those actors have on the public sphere itself. Lee argues that our political views are not influenced by elites alone; grass-roots organizations and social movement groups can also instigate social change and influence

people's perceptions of public problems. In so doing, he provides a compelling counterpoint to a prevailing theory, but by stressing the objects of power and not how they operate and employ it, his argument may miss the essential component of power. Power is not inherent in the position itself – though that may confer access in many if not most circumstances (Tuchman, 1972; Gans, 1979, for example) – but in the ability to shape consciousness, to construct shared meaning.

In order to truly understand the dynamics of mobilizing public opinion, and remove ourselves from the old, and sometimes distracting, argument of elite versus non-elite, I argue in this dissertation that we need to broaden the focus from the political positions and (apparent) structures themselves to their communicative strategies. Power may not be so much in the positions of power themselves (the elitist argument) as it is in the routines and shared meanings that govern mass communication. As Crenson (1971) argues, just because communities are not governed by “small, cohesive, and hidden elites whose members manage to have their way in every decision,”(p.25) as the elitists may contend, it does not follow that local political systems are highly penetrable. The power to define public problems is not exclusively in the structure itself but in a more diffuse or “inarticulate ideology” and the institutions that create this. As communications scholars point out, the press’ professional boundaries (Hallin, 1986), routines, expectations and ideology (Gitlin, 1980) can confer power, shape and re-shape what problems mean. Power exists in the capacity to define meaning in every stage of the political process. The mechanism of power may not be inherent to the position itself, but rather in the access to construction of meaning it *tends* to confer. As Lee (2002) reminds us, there are issues and

events (Molotch and Lester, 1975; Lawrence, 2000) where the usual rules of access and definition do not apply.

With this in mind, Lee (2002) and Zaller's (1992) theories need not be as contradictory as Lee proposes. At different times, elite and non-elites can shape public consciousness and direct policy. In stressing the 'elite' and not the 'mediated' angle of Zaller's theory of opinion diffusion, Lee emphasizes and disputes who has the ability to activate and define how the public understands a problem and – eventually – what are the policy outcomes. This in no way diminishes the obvious contributions of Lee's argument – the different levels of political struggle that are associated with elite and non-elite opinion dynamics (pp.198-9). But in his discussion of which circumstances elites or non-elites will inspire activation in the mass public, the elephant in the room is communication. Kellstedt (2003), for one, observes that the media plays no small role in the definition and re-definition of racial attitudes. As Lee himself writes, "there is no explicit empirical analysis of the information flows between political elites, movement counterelites, and ordinary individuals. Mass media institutions – as well as other sources of political information such as volunteer associations and informal social networks – are presumed to play a key intermediary role in both top-down and bottom-up opinion dynamics, but this aspect too lurks in the background"(p.195). This dissertation seeks to bring the communicative aspect to the foreground in an examination of environmental problems.

What we are left with, therefore, in the literature on the application and distribution of power in democratic politics is a theoretical impasse over who has the power to define what the issues are and how we perceive them. I have made the

contention that this argument might be profitably analyzed from the perspective of communication. This dissertation, which specifically aims to examine how interest groups are able to influence the public and policy agendas through images, should offer some insight into this greater theoretical debate. In what is to follow, I address how these domains collaborate in the construction and maintenance of issues: the structures of institutional policy making; the construction of meaning in the mass public and individuals; and the mass media. By pulling literature together that examines how these institutions, collectives and individuals collaborate to address and create public problems, I hope to set the framework through which I can answer my questions.

Sub Governments and the Policy Agenda

If we are to understand how problems are defined and addressed, then the conventional place to begin is with what we do know: the formal institutions in government that make and maintain policy. An investigation of the structural qualities of government, as I have argued above, is not the only way to examine how public problems are defined and acted upon, but it does provide the foundation from which further inquiry must depart. Subgovernments are the most basic unit of governmental decisionmaking. Heclo (in Berry, 1989) defines subgovernments as consisting “primarily of a limited number of interest group advocates, legislators and their aides, and key agency administrators who interact on a stable, ongoing basis and dominate policymaking in a particular area” (p.239) They are where the government as an institution intersects with interests, public problems and the public itself. In looking at these structures, we are not only interested in the extent to which government is (or is not) responsive to open democratic forces – that is, are subgovernments iron triangles of tightly allied actors

impervious to change or are they loosely structured coalitions – but we can gain a perspective from which to examine how problems (in some circumstances) are defined in the first place.

The structure of governmental decision-making units has profound impact both on policy directly and on the socially accepted meaning of issues, as we will see. Moreover, when the elite model of problem definition and control is operative, strategic framing begins with the small network. Bosso (1987) writes, “Some claims may never be made because those who could make them know – instinctively or otherwise – that they never will be taken seriously. An issue may head the agenda of government less because of its innate quality than because society may be willing to grant it legitimacy” (p.16). But in cases where the issue originates in a small issue network, very few people with specific authority decide what is “socially legitimate” by appealing to or couching the issue in a certain frame.

When politics is operating from the top down, the policy community, ultimately, decides how the problem will be perceived. The anti-nuclear movement is a good example (Baumgartner and Jones, 1991). Mitchell, (1981) for instance, writes that it began as “an arcane quarrel between a handful of outcast scientists and their embattled citizen supporters on the one side, and Congress, corporate America, almost all the unions, and most of the nation’s scientific elite on the other”(p.76). Before the anti-nuclear power protest took root as a mass movement, in other words, outraged members of the Atomic Energy Commission had re-defined the “problem” of nuclear power from cheap and clean energy to dangerous and destructive.

Early ideas on these policy communities favored the idea of iron triangles, where policy was made by an organization of interests that was monopolistic, tightly controlled and resistant to democratic influence and change (Cater, 1964; Maas, 1951; also Redford, 1969). As Berry (1989, p.241) explains it, these visions of policy making were essentially the same:

(1) A small group of actors plays a dominant role in developing policy in a particular field; (2) policymaking is consensual, with quiet bargaining producing agreements among affected parties; and (3) partisan politics does little to disturb these relatively autonomous and stable arrangements.

While no one argues that iron triangles do not exist (Berry, 1989), a competing model offered by Heclo (1978) provides a more contemporary interpretation of the policy making process. The subgovernment model had initially proven to be attractive in part because it allowed scholars to escape a purely institutional focus in the examination of policymaking. Subgovernments were effective constructs because they explained something that the bureaucracy-only model did not and they allowed for the analysis of policymaking in an individual policy areas. As scholarship developed, however, research began to determine that subgovernments were more flexible and open than first conceived. Heclo argues that comparatively more open and less structured subgovernmental units have replaced the iron triangle. In lieu of the rigid and closed group of interests, Heclo proposed the idea of the “issue network.” Again, Berry provides a clear explanation of an issue network:

Networks are not radically different from subgovernments in terms of membership: Lobbyists, legislators, legislative aides, and agency administrators still constitute the vast majority of the actors. White House aides, consultants, and prominent, knowledgeable individuals can also be found in their midst, though. Issue networks are more distinctive in terms

of their size and accessibility to new participants. A large network can be made up of scores of interest groups, a number of executive branch offices, and various congressional committees and subcommittees. Even a smaller network allows for broader and more open participation than a subgovernment. (p. 242).

While issue networks and iron triangles represent the structural forms of how decisions get made according to the pluralist and elitist models respectively, neither, as Baumgartner and Jones (1991) argue is absolute. Single industry interests have persisted, isolated from free and open influence, for extended periods, just as at certain points in history apparently permeable and open issue networks have introduced dramatic change. The structure of policy subsystems is not intrinsic but rather a function of a variety of variables including the political climate, interests and issue complexity.

Bosso (1987) contends, similarly, that the structure of policy systems is more a function of historical development, and furthermore, both the issue network and iron triangle models are anachronistic – at least insofar as they apply to complex issues like pesticide policymaking that Bosso studies. If Bosso is correct, moreover, the contemporary composition of policy networks is a structure in which communication takes on increased importance and if an issue gets reframed, then the issue network itself changes. As iron triangles gave way to issue networks, expert and permanent interest groups quickly choked the anticipated open access. Even though a structural or institutionalized pluralism has taken the place of iron triangles, according to Bosso, it hasn't resulted in the open access predicted by the pluralists. Policymaking has indeed become more structurally open; Bosso writes, “more interests than ever are dealt in to the game on a more permanent basis, and the system itself does not discriminate among policy claimants as easily as before” (p.19), but the policy claimants are expert interests

who maintain a permanent place at the policymaking table. Bosso calls the politics of issue networks “presence politics” because access is no longer a matter of mere socialization and privatization; in complex issues like pesticides policy, where a cadre of expert policy insiders crowd the policy networks, “access is based on a sense of ‘presence’ on having a permanent stake in and knowledge of the issue at hand, not temporary mobilization” (p.19).

Presence politics, as described by Bosso, is a system that is paradoxically open to whatever interests want to become involved but also at the same time excludes the mass public. In contrast to pluralist politics which depends on breadth, not depth of knowledge, presence politics involves only experts at the policy making level. When presence politics is operative, experts maintain control over the ostensibly open conflict by their expertise. They can broaden or narrow conflict by defining what the conflict is to the public. This has the effect of taking the politics out of the hands of the people and putting it into a legislative structure where shifting coalitions of interest groups can form fleeting majorities, not the stable majorities of party politics. Bosso (1987, p.258) writes:

Presence politics, ironically, proves potentially far more exclusive than even subgovernments, which can be destroyed through competition by views that run counter to subgovernment interests. Presence politics, however, thrives on information and knowledge, not easily understood self-interests, and it is questionable whether the public can in fact discern which information is true or false, or even the most probable. The public may know enough to discern problems, since those playing the game of presence politics make little effort to hide the debate, but the arcane nature of the exchange may leave the public only with a shallow and incomplete understanding. Experts see complexities; the public sees only problems.

Presence politics is a hybrid of both pluralist and iron triangle subgovernments. Structurally, it represents pluralist openness, but contrary to the counterelite mobilization

that Lee (2002) hypothesizes took place in the struggle for civil rights, public problems that fall into the domain of presence politics will, according to Bosso, be dependent on elite problem definition. Because the issues are so complex and intricate each side aims to create unambiguous meaning that will resonate amongst the public:

Is not simply exclusive or inclusive, but a combination of both . . . All those involved rely on the public like chess players rely on their pieces, using each whenever necessary, but only so long as necessary. To allow for uncontrolled access by the public is, after all to disrupt the game. If the public's role in subgovernments is nonexistent, and in pluralist politics central, then in presence politics the public's role is spasmodic, depending ultimately on the tactical calculations made by the players than on any long term interests expressed by the masses. (p.259)

Presence politics does seem to offer diverse views, but the choices being offered to the public are incomprehensible because they are so complex. The complexity suits those playing the game because they can exclude or include the public whenever it is strategically useful. The public becomes involved only to the extent that they have some utility for the interest groups and policy players and there exists an opportunity through which to involve them and a frame that resonates. Bosso writes that the role of the public thus becomes “a confused and only occasionally useful giant. The public responds to some highly visible and unambiguous clue – such as an accident or some cancer scare – that might work to the benefit of one side in the struggle among experts . . .” (p.260).

The structure and dynamics of policy networks – as envisioned by Bosso undermines the expectations of the signaling model – specifically the optimistic view that the public can effectively constrain policy on complex issues. One of Kollman's (1998) key assumptions in his signaling model is that “there is some ‘true’ level of popular support that the interest group either represents or is trying to skirt” (p.80-1). Kollman, in

fact, argues that this assumption is central to the “effectiveness or worthiness of outside lobbying” (p.81). But in presence politics, issue definition is left up to those who have a seat at the policy table – not necessarily the traditional elites, but engaged interests nonetheless who are able to re-cast an issue when the opportunity presents itself. Kollman’s idea that groups may direct attention towards or “skirt” any particular issue is not in itself inconsistent with Bosso’s model, except for the fact that it excludes the possibility that groups will actively try and frame an issue to shift how the public perceives the problem.

Moreover, the structure of bias that occurs in complex and arcane issues that operate according to presence politics is heavily dependent on the strategic communication of the key players. Access to decisionmaking is, according to Bosso, no longer a question of access to the policy system itself, but a matter of knowledge and expertise. In the scenario where complexity, not access, forms the barrier between the public and the policy system, the interest group or policy entrepreneur that is best able to communicate their frame will have the competitive advantage. They will be able to activate the public and construct a vision of the issue that is favorable to their policy objectives. Socialization of conflict, in Schattschneider’s terms, is no longer a simple matter of broadening the scope – if it ever was – but rather being able to define the problem in a way that will make the public care, or more accurately make them understand why they should care. The battle then becomes one of opportunism and image construction – the ability to capitalize on events, and as I will argue, images in the public mind. Lawrence (2000) points this out in her analysis of the politics of police brutality. Bosso (1987) may use the term figuratively, but he makes my point when he writes that it

is the “highly visible and unambiguous clue” that mobilizes the public in the otherwise incremental and esoteric politics of contemporary policymaking.

Agenda and Policy Change

The structure of government policy communities provides us with one perspective from which to examine how public problems are defined and dealt with by policy communities. Another method is to look at how these structures deal with issues over time – the policy agenda approach – and specifically look at how change overcomes the policy structures.

Kingdon (1984), Carmines and Stimson (1986, 1989) and especially the research from Baumgartner and Jones (1991, 1993, 2002; Talbert, Jones and Baumgartner, 1995; Jones, Baumgartner and True 1998) represent current ideas on agenda setting and public policy dynamics.

Kingdon (1984) argues that for change to occur several conditions must present themselves simultaneously, but when these conditions do line up, change is inevitable, “an idea whose time has come”(p.1). New agendas appear suddenly and shift priorities with an almost unstoppable force. How else can we explain the massive changes in the New Deal and the Great Society, which were not incremental government responses to public problems?

An idea whose time has come may be unstoppable, but Kingdon argues that the conditions that incite change are exceedingly rare. According to Kingdon’s model, policy reforms occur only during the confluence of three normally unrelated “streams”: (1) the problem stream, which includes events, information and observations about problems; (2) the policy stream where experts, advocates, and researchers analyze the problems and

propose policy responses; and finally (3) the political stream, which constitutes all forms of political pressure, including but not limited to public opinion, elections, political leadership and campaigns.

Policy remains stable but not rigid because it is responsive to outside pressure – however rare it may be. Policy change erupts when public problems appear at the same time that there is sufficient political pressure, and policy experts have formulated a response. All that is required in these rare moments is a political actor to put the three streams together.

Carmines and Stimson (1986, 1989) though mainly concerned with the effect of policy change on the party system, similarly describe a pattern of prolonged stability, occasionally interrupted by dramatic change. They write, “most issues most of the time lie dormant, stirring interest in only those especially informed and those especially affected But occasionally issues rise from partisan obscurity and become so contentious, so partisan, and so long lasting that they come to define the party system in which they arise.” (1986, p. 901). The regular course of events is that policy debate and issues are discussed exclusively amongst elites. Rarely, however, “following elite reorientations on contentious issues, comes a delayed, more inertial reaction in the mass electorate” (p.902). This mass polarization erupting from the newly salient issue is what Carmines and Stimson call a “critical moment,” a concept defined loosely as some sufficiently dramatic event capable of invoking a shift in the bases for party identification. According to Carmines and Stimson, this event first affects the elite partisans then flows to the mass electorate. The shift is not direct, but dependent on two intervening steps: the mass public must alter its cognitive perceptions of the parties’

stance on the issue and the issue must evoke a strong emotional response. Only an emotional response, the authors argue is sufficient to disrupt the “stubborn inertia of existing partisan identification” (p. 903). In this model the public plays a responsive, but definitely not passive role: “In an environment where many policy cues are given and most are ignored, the crucial role of the mass electorate is to choose to respond to some cues” (p.903).

Baumgartner and Jones (1991, 1993, 2002) provide the most comprehensive theoretical account of the rise and fall of issues and one that most clearly maps the interrelationship between public, media and policy agendas. Borrowing from general systems theory, the authors model issue networks as self-correcting political systems. Baumgartner and Jones see rapid change and long-term stability as parts of the same process. Issue networks behave as living systems, maintaining themselves for as long as they can through dynamic self-regulation but are also prone to periods of radical reorganization.

Integral to Baumgartner and Jones’ understanding of how policy agendas can shift over time are the related concepts of policy image and institutional venue. A policy image can be understood as public and elite understanding of a particular public policy problem. An example of a policy image is the way in which nuclear power was construed by the elite and public first as the source of clean and modern energy and then as a cause of enormous problems such as nuclear fallout. A policy image can change over time because of new discoveries, subtle influences and dramatic events, but it tends to reflect one aspect of the issue to the exclusion of others. As Baumgartner and Jones (1991) write:

During some periods, negatives are ignored; during others, positives. Of course, change is not inevitable. Sometimes only one side of an issue is given serious consideration for decades. When the public perception of an issue changes, however, it often changes in a radical fashion rather than slowly. Further, the change in image stems not from any direct contradiction of facts or through anything one describe as rational argument. Sometimes a single new discovery, an accident or natural disaster, or a speech by a major public figure may set in motion a dramatic process of reversal in the tone of public debate (p.125).

Policy image is important, but the institutional venue that has jurisdiction over the issue is a more straightforward means of control and impetus for change. Different venues have different biases. Consider, for instance decisions made by the Environmental Protection Agency in comparison with the Department of Agriculture. Each has different priorities, routines and participants. A policy image is related to its institutional venue because one implies the other. If nuclear power is construed as a clean source of energy, then the policy venue includes one set of policymakers; if it is understood as being dangerous to public health then the venue is located elsewhere. When venues change, so do the resulting decisions and public and elite understanding. Again, Baumgartner and Jones write:

When the venue of a public policy changes, as often occurs over time, those who previously dominated the policy process may find themselves in the minority and erstwhile losers may be transformed into winners. The image of a policy and its venue are closely related. As venues change, images may change as well; as the image of a policy changes, venue changes become more likely. (p. 1047)

This understanding that a change in venues acts as an instrument of change further serves to underscore the importance that strategic framing plays in the battle over policy. Policy image is dependent on both venue and issue framing. While a change in

venue will necessarily cause a shift in the issue frame, a group can also appeal to shift the venue of decisionmaking by re-framing the issue in a way that highlights a new jurisdictional vision. If the group can re-frame the issue, say for instance the scientists who re-framed nuclear power as a public safety issue, not just a power issue, then concerns or conditions that were previously considered marginal in the old venue now become the focus of the new venue. In so doing, the “frame” becomes institutionalized, as Baumgartner and Jones (1993) write, “the laws passed by Congress may explicitly make legitimate certain rhetorical symbols, so the venue change may lead to changes in image as well. From one strategic appeal, a whole series of self-reinforcing changes in image and venue may potentially follow”(p.37-38). In the end, it is irrelevant whether this is a top-down or bottom-up process. Baumgartner and Jones show that a failure to control the frame of nuclear energy led to the loss of control over the issue for some of the policy players. Lee (2002) shows us that the civil rights movement was able to shift the frame from the bottom-up. Baumgartner and Jones (1991) speak of a policy image, but they could be referring to frame contests of competing interests: “the manipulation of images is not only one of the ways in which the powerful try to maintain their positions, but also is a potential route to political power by relatively weak opponents to large economic interests.”

Public Opinion and Public Policy

It is not so important in either signaling or framing whether the impetus for social and policy change originates from counter-elites or elites, but the extent to which the public is involved in changing public policy is crucial. Signaling theory expects that true public preferences, because they are exogenous to the political construction of meaning,

can direct public policy makers in their decisions. Specifically, there is a causal relationship between public opinion and policy – when public preferences are signaled. Framing, however, because it views public opinion as being endogenous to political efforts and the continual construction of meaning, and therefore malleable, posits no causal relationship. This raises an empirical distinction between the two models. That is, what effect, if any, does the public have on issues that policy makers attend to?

Normative theories of democratic leadership and popular government require that policy is directed by public opinion. Some models of agenda setting offer empirical collaboration for this. Page and Shapiro's (1992) rational public theory, for instance, is consistent with signaling theory's expectation of consistent policy preferences (See also Erickson, Mackuen and Stimson, 2002). In a macro analysis of opinion data, Page and Shapiro provide evidence that aggregate public opinion is coherent and reflective of consistent values. Instead of looking at individual-level values, beliefs or attitudes towards political issues, Page and Shapiro focus on collective policy preferences, which they define as the proportion of the public which favors a particular policy at a given moment and how that changes or remains constant over time.

Collective public opinion, they write "is real . . . it forms coherent patterns and makes reasonable distinctions among policies, in accordance with the underlying values of Americans" (p.116). A consistent and true public opinion, logically speaking, bolsters Kollman's signaling claim because we would expect self-interested policymakers to not only pay attention to it but make policy in accordance with it. Cobb and Elder (1972) also provide some support for the idea that it is the public that drives policy – albeit in a much less direct manner than signaling hypothesizes. According to their theory of agenda

building, public opinion is an integral and formative influence on the policy agenda.

Public involvement in the agenda process is widespread, according to Cobb and Elder, and not just in terms of short-term electoral feedback:

While elections may fortify the short-term stability of a system, this will go for naught if the content of formal agendas does not reflect the substance of the systemic agenda . . . Passive acceptance of the status quo is a critical input, fortifying the existing mobilization of bias and limiting the development and formulation of public policy issues. Further, mass participation may be one of the major innovative forces in developing new issues and refining old issues (p.164)

But even this support for the signaling model is qualified. First, Page and Shapiro's notion of real and consistent public preferences does not exclude the possibility of persuasive influences. In fact, their theory explicitly articulates that interest groups are one key causal influence on the change in public opinion (p.354). There are cases, Page and Shapiro write, in which people react to events directly (although, presumably filtered through the media) but "many influences on opinion – including most international events – work only through interpretations transmitted by the mass media and affected by various elites, interest groups, and the government itself" (p.354). Public opinion in other words, even when it is measured on a macro level and found to be consistent and reflective of true underlying values, is influenced by the interpretations of political players – elite or otherwise.

Support for the signaling model is further undermined by the criticisms of the collective rationality approach itself. Methodologically speaking, the macrofoundational model has been criticized because its conclusions are based on only one of many and possibly contradictory causal interpretations. As Lee (2002) writes, "it is entirely

plausible that public opinion correlates with policy outputs because elites have the foresight and influence to craft and coax public opinion toward a particular aggregative outcome that suits the policy preferences of elites, not their constituents”(p.21). Jacobs and Shapiro (2000) further contend that politicians pay attention to what the public thinks and prefers in order to find a way to sell their chosen policy program.

Other research offers a more direct challenge to the notion of the public as the activator of policy. Elite models of opinion formation explicitly undermine any potency of mass opinion (Zaller, 1992; Converse, 1964). If public opinion were as inconsistent, capricious and free of ideology as these models expect, then following public opinion would be as pointless as it is strategically disastrous. In fact, if Zaller’s Receive-Accept-Sample model accurately accounts for how most citizens express political opinions, then any attempt to follow public opinion – as expressed in surveys – would be putting the cart before the horse. Other research that examines agenda setting and policy change sees public opinion as only one of a host of formative considerations in the policy agenda (Carmines and Stimson, 1986; Mitchell, 1981; Baumgartner and Jones, 1991, 1993) Carmines and Stimson find that with regards to racial desegregation, political realignment is driven from the top down. Baumgartner and Jones argue, in fact, that mass mobilization is not even a necessary element to policy change. Strategic policy policymakers can break apart policy systems without appealing to the mass public by shifting policy venues alone. More to the point:

Even when mass publics are involved in the issue expansion process, they often come into the process following elite debate and then generally respond to symbols generated during the elite conflict . . . Major declines in public support for nuclear power occurred well after the demise of the option as a realistic policy alternative. By the time the conflict had been

socialized to include the mass public, important policy decisions had already been made through the manipulation of image and venue among the institutions of national and local levels of government, far from the glare of public attention. Reversals in public opinion played an important role in solidifying the changes that had occurred among elites, but they did not create them. (p. 1050)

The dynamic between public opinion and political interests is much more endogenous than is allowed for by the signaling model. Jacobs and Shapiro's (2000) theory of "crafted talk" is a good example of the current understanding. Political interests treat "public opinion as a political resource to pressure policy makers," but in sharp contrast to signaling, political players only address "public opinion after deciding on what they wanted to do" (p.103). According to this way of thinking, elites use public opinion data to craft language, arguments and symbols to support their policy decisions. Their purpose was to exert the 'leadership skills to shape public opinion' and 'educate people' (p.103). Taken together, the findings offer only the slimmest of support for the direct causal relationship between public opinion and policy action as hypothesized by the signaling model. This is not to say that public opinion has no effect on policy whatsoever, but rather to say that it isn't a prescriptive force. The public is, as Cobb and Elder (1983) remind us, is not a negligible force on the issue agenda. V.O. Key (1961) conceived of public opinion in a similar vein when he wrote, "Mass opinion may set general limits, themselves subject to change over time, within which government may act" (p.97). Public opinion is less directive than it is diffusely constrictive.

The latest research by Jones and Baumgartner (2003) further underscores this point. In an analysis of the correspondence of government and public priorities, the study finds that there is not only a high degree of agenda congruence, but also a high degree of

policy congruence. Lawmaking of the national government is consistent with the priorities of the public. The public is “seriously involved in the agenda-setting process,” they write “not an ignored bystander”(p.13).

The public and the policymakers attend to issues differently because they have different capacities. The public can only focus on a constrained set of issues at any one time. Congress, however, acting as a collection of experts and subsystems can divide responsibility and juggle many issues at one time. What has been missing from the discussion up to this point is the importance of salience as an activator of public opinion. In looking beyond the structures of policy networks and time-series analysis of policy change, we find that public opinion is not relevant to all issues in the same way. Whereas government policy systems attend to a broad array of policy issues all the time, public opinion is more focused. At any time, only a few issues are salient enough for people to have something of a consistent opinion on it, and for that opinion to be considered substantial by the policy makers. As LeoGrande writes about the public opinion on aid to the contras in Nicaragua: “Both Congress and the executive could afford to be unresponsive to public opinion because the issue never achieved a high enough level of salience for the mass public to focus on it” (in Glynn et al., 1999, p.13).

Salience in the Media and the Public’s Agenda

Public preferences, as they are measured by opinion polls, may not be a sufficiently focused form of public opinion to have an effect on policy. Herbst (1998) finds that policy makers rely on press accounts as a barometer of sorts for public opinion. Practically speaking, those who construct policy have found press accounts to be a more useful heuristic device for gauging opinion than a “top of the head” response to an issue

that has little or no salience. News accounts of issues and events, these policy makers conclude, either reflects what the public is actually concerned or what they will be exposed to. It is at any rate a more economically efficient way to gauge the concerns of the public. In fact, these political actors claim that public opinion doesn't really exist until interest groups or media have given it shape. Press reports provide the policy makers with an idea of where public attention is focused and a notion of what the range of opinions are. Scholarship on the relationship between press and the public opinion bears this out.

In 1963, Cohen wrote that the press "may not be successful much of the time in telling people what to think, but is stunningly successful in telling its readers what to think about." Just under ten years later, McCombs and Shaw (1972) found that empirical evidence indeed supported this contention. Voters' self-reports of what they perceived to be the important issues were highly correlated with the media's agenda of the issues.

Findings have consistently validated McCombs and Shaw's initial results. For the most part, influence has been measured as a correlation between respondent reports of what they perceive of as important issues and content analyses of news media. Research generally confirms that, except for some local issues (Smith 1987), salience in the media results in perceived salience in the public (Winter and Eyal 1981).

Salience is the principal means by which the agenda is set. Although not every research project measures salience the same way, results variously confirm that prominence in the media, amount of space, and persistent coverage over time (Salwen 1988) all have an impact on what the public defines as a salient issue problem.

Page, Shapiro and Dempsey (1987) look beyond the “media” framework to determine what the varying effect of different sources have on the public’s agenda. This is noteworthy because it shifts attention from a wholesale “media effect” to the political actors that appear within the media. Zaller’s (1992) research takes this perspective to a more elaborate and full theory. Whether they are informed enough to be consistent or not, Zaller’s theory contends that the public adopts the expressed opinions of elites that appear in the press. Mass opinion change, agreement or disagreement is a function of what opinions are voiced through the press. Page et al. (1987) find that not all sources have the same effect on public policy preferences. News commentary and experts have the strongest positive impact on public opinion. Evidence suggests that presidents may at times follow rather than lead opinion and special interests tend to have a negative effect on public opinion.

Iyengar and Kinder (1987) provide one of the most thorough examinations of the effects of television content on public perceptions. Agenda setting, they write, “may be an apt metaphor, but it is no theory” (p.3). To generate a theory they set out to test if the problems that received prominent attention in the national television news become what the public perceives as the most important.

Previous agenda setting research relied primarily on dependent variables constructed from survey responses and some form of content analysis as the independent variable. The use of natural settings is sensible, but it leaves room for intervening effects. Some attempt has been made to control for the endogenous quality of public opinion and the world beyond the media. Funkhouser (1973), for one, tries to differentiate between real world events and the media agenda. He finds that the public agenda correlates

closely with the media agenda even when the intensity of media agenda is at odds with real world events.

Iyengar and Kinder (1987), however, use experimentation to control for any extraneous effects. By exposing people to a variety of conditions with variable salience of issues and vividness, they conclude that the media powerfully shapes how people view society:

People who were shown network news broadcasts edited to draw attention to a particular problem – greater importance than they themselves did before the experiment began, and greater importance than did people assigned to control conditions that emphasized different problems. Our subjects regarded the target problem as more important for the country, cared more about it, believed that government should do more about it, reported stronger feelings about it, and were much more likely to identify it as one of the country's most important problems. (p.112)

Additionally, Iyengar and Kinder find that the importance ascribed by the media not only have effects on the perception of importance of issues but they have real and significant effects on how people make political judgments.

People are unable to take all they know into account when they evaluate political issues. Research on social cognition tells us that we are not so much utility maximizers as we are satisficers (Simon, 1959, 1985; Fiske and Taylor 1984). Satisficing can be understood as making a decision based on information and effort that is “good enough” as opposed to actually attempting to be optimal in that decision by getting all the information and considering all the alternatives. We tend to draw on information that is readily accessible not information that is the best possible. Iyengar and Kinder find that because of this so-called priming effect, we tend to evaluate issues in a manner that is consistent with the way an issue is covered on television. This affects how we make

political choices. For instance, if television news presents a civil disturbance as a riot, people will tend to evaluate it as such. Alternatively, if the disturbance is presented as a justifiable reaction to social inequality, people's evaluations will likewise follow. Iyengar and Kinder refer to the potency of media to inspire what bits and pieces of political ideas that come to mind when making a political evaluation as priming. By "drawing attention to some aspects of political life at the expense of others . . . television news (helps) to set the terms by which political judgments are reached and political choices made"(p.114). In other words, media salience affects which issues we perceive as important *and* what aspects of those issues we recall.

Media Effect on Public Policy Action

It appears, then, that the media have an effect on how the public itself perceives the public agenda and in turn on the policy agenda itself. The effects are part psychological – priming effects (Iyengar and Kinder, 1987) – and part political calculation on the part of politicians (Herbst, 1998). As agenda setting research illustrates, the public tends to consider important what the media considers important. As I will outline presently, the media further tend to influence the perspective from which the public perceives those problems. But when we're looking at the media's effect on policy, whether public opinions are formed in a manner consistent with a model like Zaller's (1992) or the more considered and passionate embrace of a social movement that Lee (2002) specifies, the actual mechanism may turn out to be largely unimportant (in terms of policy making, that is). How the public actually forms its opinions and who is responsible – elites or counterelites – may not so much matter beyond the fact that the issue is made salient and a particular frame is adopted by the press. As Herbst (1998)

writes, policymakers believe that “mass media content *is* public opinion”(p.64).

According to Herbst’s informants, public opinion as inferred from the news media is not just a conduit for public opinion expression, it is in fact the only type of public opinion that matters.

Unlike electoral campaigns, policymakers do not have the budget to continually commission expensive public opinion surveys (Herbst, 1998). But even if they did, there’s no saying that this type of measurement would provide policymakers with the information they need. Media coverage as public opinion, after all, is not conceived of as a proxy or an indicator but the opinion itself. Herbst writes of the policymakers:

The public for them is large and potentially powerful, but rather sleepy and inattentive. Staffers see that media content and interest groups are excellent crystallizers of a nebulous public opinion. The public is vague in its feelings and easily manipulated, staff members tend to believe, so it is most efficient to look to the sources of persuasion – interest groups and the media – if one is to understand the nature of public opinion.” (p.75)

The process, according to Herbst, that explains how a policymaker considers public opinion in constructing a bill is curiously reactive. Initial legislative action is driven not by any specific reading of public opinion but by the fuzzy conception of a climate of opinion. Policymakers only seem to make a concerted effort to gauge public opinion (through media and interest group response) as a reaction to the bill. A diffuse reading of public opinion, derived entirely from second-hand sources, coupled with a low-estimation of public attentiveness leaves open the possibility that the third person effect could be operating and not true public opinion change. Mutz (1989), for one, provides evidence that it does. This doesn’t weaken the effect of framing – it only simplifies it. For the policymaker, public opinion in and of itself is not worth considering.

It might go many directions. As Herbst points out it is inefficient to consider it in its rare state. When it is set within the media, it has shape and direction “it is the very essence of public opinion and can support or destroy legislative initiatives” (p.65).

This conception of public opinion conflicts with the signaling model not only because policymakers apparently believe that public opinion is constantly malleable, nor just because it only seems to consider public opinion after legislative action, but also because public opinion envisioned thus is not at all a “true” expression of public preference. Far more problematic, it is as Herbst argues, public opinion as media content is the “phantom public” articulated by Lippmann (1925) – a projected opinion conceived of by an elite group of journalists.

At the same time, this idea of media as public opinion seems much more at home with the idea that interests compete to define problems through frames. Public opinion is a strategic meaning-making competition that takes place in the media where competing frames, not true public preferences, are the bases of inference. As Herbst contends, the policy experts *expect* interest groups and the media to shape public preferences. They look to these second-hand (and problematic) sources to get some indication of where it is going, or at least where it appears to be going – not where it might be.

Political Judgments and Contextual Salience: Framing

Cohen’s axiom about the media and public agenda was conceived of in the height of the minimal effects paradigm (Klapper, 1960). Keeping this in mind helps us appreciate the initial caution with which media effects were studied. There is now, however, general acceptance of the idea that the press is good at telling us what to think about *and* how to think about it. Media scholars call this effect second-level agenda

setting; Iyengar and Kinder (1987) refer to the media's influence on recall as priming. But the capacity of media to influence our perspective on an issue is broadly understood of as framing.

Gitlin (1980) is often given credit for introducing media researchers to the idea in his analysis of how the press covered the student protest movement. For Gitlin it is not just that the press covers an issue but how it covers the issue. Gitlin argues that the media selects a particular vision of events and issues and this vision influences not just how the public perceives those issues but indeed how the movement ends up perceiving itself. Media in other words, "were far from mirrors passively reflecting facts found in the real world. The facts reported were out there in the real world, true; out there among others" (p.29). Gitlin's thesis, broadly, is that by making salient certain aspects and obscuring others, the media shapes how the public views the issue as well. He writes:

Media frames, largely unspoken, unacknowledged, organize the world both for journalists who report it and, in some important degree, for us who rely on their reports. Media frames are persistent patterns of cognition, interpretation, and presentation, of selection, emphasis and exclusion by which symbol-handlers routinely organize discourse. . . . (p.7)

The public depends on the press to report on public issues and Gitlin finds that mediated frames are so pervasive and powerful that they limited how the public saw the protest movement and even affected how the student movement saw itself. Especially when there is broad agreement across media and sources, the mediated version of issues tends to limit how the public perceives them. Media are collectively able to define how the audience – the public – perceives a public problem.

The media frame an issue by offering a limited interpretation of it. Entman (1993) defines framing as follows:

Framing essentially involves selection and salience. To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described. (p.52)

Messages can make certain interpretations more salient by “placement or repetition, or by associating them with culturally familiar symbols” (Entman, p.53). Mediated frames are thus pervasive and often unnoticed because they tend to reflect cultural views and biases. Popular news media that depend on an audience in order to sell advertising are not likely to frame news coverage in a manner that would offend that audience. But as Gans (1979), Hallin (1986) and Entman (1989) remind us this does not mean that the press provides the people with news that they need or indeed want.

Before I continue, let me offer a clarification. Framing, as Entman (1993) and Jacoby (2000) point out, has been confused by a scattered conceptualization. Entman writes that “framing consistently offers a way to describe the power of a communicating text. Analysis of frames illuminates the precise way in which influence over a human consciousness is exerted by the transfer (or communication) of information” (p.51). But scholars have used frames as a concept to describe an array of ways in which a communicating text has influenced human consciousness.

At the immediate and decision-making level, Tversky and Kahneman (1981) explore how the framing of a question can change the way we respond (see also Kahneman and Tversky 1984, 1987; Schuman and Presser, 1996). Their findings have

had obviously broad application, but their specific contribution was to show how the exact same information framed in a slightly different way could evoke a more risk-averse response and cause people to behave differently.

What Jacoby (2000) calls issue framing happens at a more extensive level and is more concerned with political efforts to elicit public support on policy issues. Issue frames are strategic communications from political elites who intentionally try to make salient certain qualities of an issue in order to elicit a particular evaluation of the issue. For example, consider a senator who wants the support of energy companies in her state. With an upcoming energy bill in the works, she will attempt to frame, spin or otherwise make salient a view of the bill that will increase the likelihood of it passing. She may present an expanded program of drilling for oil as a means to achieve more national self-sufficiency at a time when the public is wary of international arrangements. Competing frames reflect a political battle to define the political agenda. Issue frames are communicated for both elites and presumably the mass public. Issue frames are not dependent on the mass media alone for transmission – they have a number of additional conduits: advertisements and various public relations techniques. But for a combination of reasons – the broad reach of the media and the possibility of a third-person effect – advertising and P.R. campaigns are not expected to influence people and policy makers unless they can achieve the same salience as a story that gets attention from the media. And this is indeed the aim of many campaigns –the initial advertising campaign is designed to be controversial enough or otherwise arouse enough attention so that the media pick up the story.

This is the tricky double-edged sword wielded by politically marginalized groups that aim to take their message beyond the negligible exposure they can buy. People for the Ethical Treatment of Animals, for instance, will get press coverage from the (apparent) furor they create by buying a provocative advertisement (naked celebrity) that might face a highway in Mobile, Alabama. What is unknown is whether the ensuing exposure, in which the group is framed as something between outlandish and social pariah, is fully intended by the group. If PETA is aiming for broad influence, the media frame would hurt their chances of expected influence. If, however, their aim is to influence a very narrow group, then being framed by mainstream press as marginal might help.

Most diffuse overall are so-called media frames or media influence frames (Hallin, 1986; Gitlin, 1980; Gamson and Modigliani, 1989). Media frames, like decision-making and issue frames make salient certain qualities that evoke a particular evaluation. Although the sources of political news stories are almost always attempting to do so, news frames are not actively constructed by news workers for political effect – other than to remain non-controversial. These frames are more the result of journalistic norms and values and their own diffuse sense of what is the prevailing climate of opinion.

This is a feedback-rich relationship. The journalists that write and edit the news, after all, live in the same broad cultural milieu that they report on. In as much as we share a common experience together, journalists are exposed to the same messages as the rest of us. Their job is not so much to frame the events and issues out of whole cloth, as it is to construct it in a way that comports with the pervasive values of the time – or at least as they perceive it, which may often mean that old frames get re-used.

Media and the Construction of Public Problems

I have argued that what the public, press and policymakers pay attention to at any given time are not a reflection of objective conditions as much as they are the salient ones. Lawrence (2000) puts it this way:

What qualifies as a “problem” for any given society on any given day may have less to do with the objective breadth and depth of problematic conditions in society than with the things people are paying attention to and how they are perceiving them. What becomes understood as a problem—a societal condition that people believe is unacceptable and should be addressed with new or invigorated public policy – can depend upon what perspectives on societal conditions are highlighted in the news. (p.4)

The people in the media who create this salience, however, are both involved in perceiving and crystallizing these conditions. Journalists, as Gamson and Modigliani (1989) remind us, exist in the same culture as the rest of us. Media discourse and public opinion are parallel systems where meaning is constructed and shared. They write, “media discourse is part of the process by which individuals construct meaning, and the public opinion is part of the process by which journalists and other cultural entrepreneurs develop and crystallize meaning in public discourse”(p.2). Journalists are, conceived this way, more condensers of meaning (systematically selective though it may be) than creators of it. The authors continue:

Many journalists straddle the boundary between producers and consumers of meaning. These journalists – editorial writers, cartoonists, opinion columnists and the like – are not engaged in constructing accounts of raw happenings. They observe and react to the same media accounts, already partly framed and presented in a context of meaning, that are available to the other readers and viewers. In their commentary on the issue, they frequently attempt to articulate and crystallize a set of responses that they hope or assume will be shared by their invisible audience. (p. 9)

But there are few tests to see if these responses are indeed shared. As a result, journalists may construct an imaginary audience that has little to do with how people actually react. This is not to say that media practices fail to have significant effects on which facts are selected as salient and which limited interpretation is offered for public consumption. News routines, values and journalistic norms systematically influence what becomes news and what doesn't and will be discussed presently. For now, let us consider what the media does select. The preponderance of framing research suggests that media frames are elite constructions or supportive of the political status quo (Ashley, 1998; Simon, 2000; Lewis, 2000; Liebler, 1996; Noakes, 2000). Journalists are loath to appear controversial or supportive of controversial ideas (Tuchman, 1972). Consequently, they actively frame in and frame out what they perceive to be acceptable ideas and sources.¹² Tuchman (1974) finds that in the pursuit of "objectivity" journalists will seek Democrats to rebut Republicans and vice-versa, but that outside challengers are rarely offered the opportunity to criticize.

Furthermore, to speak of media frames obscures the dynamic process of meaning creation that is played out with political interests, journalists and the mass public. No matter how acceptable the ideas are for culture at large, for each and every policy there are interests aiming to promote their perspective, to find a way to resonate and be salient among the public. Gamson and Modigliani (1989) write:

¹² I do not mean to imply here that news is not a construction and that there are not additional influences that shape how journalists will frame a story – influences that may conflict with elite sources' objectives. But these are complex dynamics that are more effectively considered when I discuss the routines and norms of the news media. Reporters, for instance, prefer to use a "game frame" in constructing a story. A game frame is something that few elites are interested in pushing themselves, but because it meets the requirements of news routines nicely, can find themselves using in the negotiation of newsworthiness.

On most policy issues, there are competing packages available in this culture. Indeed one can view policy issues as, in part, a symbolic contest over which interpretation will prevail . . . Packages ebb and flow in prominence and are constantly revised and updated to accommodate new events. (p.2)

These competing perspectives are a means, then, by which political interests can play a role in the social construction of meaning *through* the media. Political interests are active players in the endogenous, interrelated systems of media discourse and public opinion. This is consistent with the first type of conflict mobilization as articulated by Baumgartner and Jones. It is inconsistent with the signaling model.

Research on interest groups' use of frames is thin but there is an emerging field of scholarship that examines the signifying work social movement organizations use to bring others views in line with their own (Cress and Snow, 2000; Johnson and Klandermans 1995; Morris and Mueller 1992; Snow and Benford 1988, 1992). As Snow and Benford (1988) argue, interest groups use framing to mobilize supporters, gain support and demobilize antagonists. Indeed, as Cress and Snow (2000) find in an analysis of political outcomes of homeless social movement organizations, skilled prognostic (prediction about the future course a problem will take) and diagnostic (the nature or cause of the problem) framing can go a long way in helping the groups succeed. They conclude that successful framing of the issue is the only condition that comes close to being a necessary condition to the attainment of the desired outcome (p.1100). While some of this is no doubt due to the fact that social movement groups who are skillful at constructing frames are also likely to be viable groups, it does not diminish the fact that frames are particularly useful at defining and bringing into focus their grievances, and targets of blame and action.

Antinuclear interest groups, according to Gamson (1988), altered media discourse by direct and political action, which in turn changed how the media framed the Three Mile Island and Chernobyl accidents. Likewise, McAdam (1996) finds that pronouncements as well as tactics helped the civil rights movement reframe their battle with segregation.

Pitchford (2001) makes an especially important point about frame conflict in her analysis of how the Welsh nationalist movement re-framed negative ethnic images to redefine cultural stereotypes. Framing, she writes, does not take place in a void, but rather “in the context of a larger culture with its own definitions and values”(p.46. See also, Gamson 1992; Johnson and Klandermans 1992). These cultures are not monolithic: they contain values and themes that can both constrain and enable oppositional movements. Cultural values are not consistent; they include and are made of contradictory elements like justice and mercy, charity and self-sufficiency and democracy and authority (p.46; c.f. Huntington, 1983). Different values are operative at different times. The struggle for any social movement group is to redefine itself by reframing itself within those values to support their own goals.

Arguably, this is what the civil rights activists did in the Birmingham protests. By reframing how Americans saw their struggle for equality, the leaders of the movement were able to redefine how the dominant culture understood segregation. The pictures of blacks being attacked by dogs and sprayed with water cannons put the civil rights struggle on the moral high ground. People marching in civil rights protests were not malcontents who aimed merely to disrupt the system; they were people – and non-violent people at that – *obviously* being denied equal rights. The values of the dominant culture

did not change. What shifted was how individuals saw and how society as a collective perceived the civil rights movement. This is consistent with Lee's (2002) interpretation of what inspired a bottom-up mobilization.

Pitchford writes that the rhetorical activity of interests that aim to change popular perceptions is a form of "amplification in which activists clarify, emphasize, and assign new relevance to preexisting values and beliefs that have not been acted on in the past. Image-makers link these values to their own claims using elements of their own history and culture. These become symbols of their virtue and their opponents' guilt as when 'slavery' symbolizes white America's historical failure to uphold values of freedom and justice" (p. 46). As I discuss in the next section, this process mirrors how frames create meaning and elicit values within individual information processing. How we schematically make sense of issues on an individual level – that is which values are considered relevant and resonant, has its parallel at the collective and cultural level.

But the editorial content of popular news media is not the only forum for the discourse relevant to policy, as we've already discussed. Certainly, General Electric's greenwashing campaign was first and most obviously a public relations and advertising campaign that took place in the advertising pages of *The Times Union* and in between prime time shows on network television. Likewise, British Petroleum's "beyond petroleum" campaign was more prevalent in between the editorial pages of *Time* and *Newsweek*.

Nevertheless, as Gamson and Modigliani argue, if one is interested in mass opinion then the news media is a dominant force by reflecting and contributing it. The media help produce outcomes, insofar as public opinion has a role to play. To borrow the

language of Baumgartner and Jones, the media play a significant role in the maintenance and contests over policy images. The media are where interest groups contend over what particular story will resonate in popular culture -- they are an important location in which social groups, institutions and ideologies struggle to define and construct problems and issues (Gurevitch and Levy 1985, p.19). Indeed, Gamson and Modigliani argue that the media are not the only forums for public discourse, “but since they constantly make available suggested meanings and are the most accessible in a media-saturated society like the United States, their content can be used as the most important indicator of the general issue culture” (p.3). This is further consistent with Page’s (1976) contention that the media operate as the key arena of deliberation and decision across a fragmented institutional structure.

Social Motivations to Accept Salience and Frames

According to a growing field of research that spans anthropology, psychology, economics, political science and persuasion literatures, social motivations help explain why certain issues (and not others) achieve salience and why we tend to collectively accept mediated frames. In concert with cognitive explanations – heuristics (Popkin, 1991) for example – research shows consistently that there may be social reasons for why people tend to conform to what others find important. According to these findings, people tend to pay attention to the same issue and tend to perceive it from the same perspective as others (for reviews, see Cialdini and Trost, 1998; Levine, Resnick and Higgins, 1993). Obviously, if part of the media effect is derived – not from the exposure to the message or image in itself – but the understanding that this is an expression of what others believe, we can see why discriminating media effects has historically been so problematic.

Frames are successful means by which people can influence how others perceive issues, as I have outlined, because frames subtly present the issue in a way that we are used to perceiving it. The subtlety of the presentation, no doubt, is one reason that people may uncritically accept the information as presented. But beyond this primarily cognitive explanation, social factors might also help explain why we willingly and uncritically accept and shift our frames so suddenly.

As social animals, there is an obvious benefit associated with the ability to cooperatively respond to threats. Functionally, there would be an advantage to those could work with others and from an evolutionary standpoint, socially-based salience is much more efficient means of threat avoidance (for example, Schaller and Latane, 1996). As Shiller writes, “one of the mechanisms that the brain has evolved to direct attention properly is a socially based selectivity” (2000, p.164). What is important to the group generally becomes important to the individual. In short, we pay attention to what others are paying attention to: “This social basis for attention allows individuals who recognize the importance of some information to bring it to the attention of other members of the community, and it creates a view of the world and an information set that are common to the community”(p.165). . In short, evolution has created the mechanism where group action is possible, but only through the partial sublimation of the individual:

Along with the patterns of speech itself, there has evolved a complex set of brain structures supporting emotional and interpersonal behaviors that facilitate communication so that communication is not only possible, but also so effective and frequent. Human society has an evolutionary advantage in its ability to act as a unit to respond collectively to information. Group members must therefore exchange information among themselves before a crisis happens; they must promote a collective memory of important facts, common assumptions and conventions. The human communication patterns work very well and must account for part

of the success of the human species in competition with other animals.
(Shiller, 1995, p.183)

In their review of the social foundations of cognition, Levine, Resnick and Higgins (1993) argue that we cannot talk of cognition without recognizing that it exists within a social context. To model human cognition as individuated from others, misses much of what cognition is about:

Although some might claim that the brain as the physical site of mental processing requires that we treat cognition as a fundamentally individual and even private activity, we are prepared to argue that all mental activity – from perceptual recognition to memory to problem solving – involves either representations of other people or the use of artifacts and cultural forms that have a social history. (p.597)

One early psychological approach to the social basis for attention was conformity. As explained by Cialdini and Trost (1998), conformity exists when perceived or real pressure from others causes us to act in a way that we might not if that external pressure didn't exist. The benefits of conforming are obvious. Conforming allows us behave effectively together, build and maintain social relationships and manage our self-concept. Without conformity, group cohesion and cooperation would be extremely unlikely. Asch (1956) began "a line of research that he expected would invalidate the seemingly overwhelming effect of suggestibility on individual behavior and dispel the notion that humans are 'like sheep.' Contrary to expectations, his research on the objective judgments of line length became compelling evidence of human conformity to group pressure" (in Cialdini and Trost, p.162).

Research since Asch (1956) has tried to explain why people are influenced by what they perceive as the majority opinion. Allen and Wilder (1980) conducted research

that showed people tend to minimize dissonance with their group by reinterpreting information. Noelle-Neuman (1984) developed Asch's findings into a theory involving media and public opinion. Noelle-Neuman finds that people are unwilling to express opinions contrary to what they perceive to be the majority opinion because they fear being ostracized. The result, obviously, is a conservative expression of public opinion. In fact, for Noelle-Neuman, public opinion can only be defined as "opinions on controversial issues that one can express in public without isolating oneself" (in Salmon and Glynn, 1996, p.166).

The study of social norms also offers some useful conceptual research that explains the interpersonal dependency and influence (Berkowitz, 1972; Cialdini, Kallgren and Reno, 1991; Latane, 1996). Social norms "are rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of laws. These norms emerge out of interaction with others; they may or may not be stated explicitly, and any sanctions for deviating from them come from social networks not the legal system" (Cialdini and Trost, 1998, p.152).

Subjective norms, as conceived by Fishbein and Ajzen (1975) in their theory of reasoned action, provide a clear theoretical conception of how normative forces can influence behavior. The most significant factor in determining whether someone will perform an action, the theory states, is a person's intention to perform that behavior. We can predict a person's intention, they argue, by knowing two things: their attitude toward the behavior (positive or negative) and the person's subjective norm. A subjective norm refers to the person's perceptions of social pressures to perform or not perform the behavior.

Janis (1983) used foreign policy fiascos to illustrate this phenomenon and how it can interfere with individual critical thought— especially in groups where there is “amiability and esprit de corps among the members” of a group (p.13). There is plenty of literature that decries the tendency of humans to uncritically follow the leader, but all herd behavior is not all fiasco. Group co-ordination undoubtedly serves a useful purpose. This is not what we commonly associate with rational behavior, but it does recognize that individuals do not exist (and thrive – or not) in a vacuum. Cooperative behavior is at least as relevant to human society as rational behavior.

In terms of frames, then, we may infer that debate about an issue or policy is limited to the context in which it is commonly or currently framed (especially as it is framed in the news media). The inability or unwillingness to discuss an issue outside of the context in which it has been framed may, in part, lie in our unwillingness to transgress the perceived social norm.

Economists have examined others’ influence on behavior as a rational process. Seemingly irrational behavior is the result of low information situations and the heuristic attention to others’ preferences (Bikhchandani, Hirshleifer and Welch, 1992). Fads, changing customs, shifts in scientific theories, political approval fluctuations, and stock market behavior exemplify this behavior. Bikhchandani et al. model what they call “informational cascades,” to explain situations “when it is optimal for an individual, having observed the actions of those ahead of him, to follow the behavior of the preceding individual without regard to his own information”(p.994). In other words, the authors propose that a rational attention to social behavior of others in low information situations may explain conformity, fragility and the spread of new behaviors.

Likewise, Banerjee (1992) explains “social and economic situations in which we are influence in our decision making by what others around us are doing” (p.797). Banerjee describes “herd behavior” as “everyone doing what everyone else is doing, even when their private information suggests doing something quite different” (p.798). To explain his model, Banerjee uses an example of people deciding which of two restaurants is better. If the first person chooses the first restaurant, the next people who follow may rationally choose to ignore their information on the restaurants, presupposing that the person before them has better information. What follows is called a “herd externality” where people follow others and in so doing conceal their own information. By this logic, everyone could end up going to the wrong restaurant. And this takes place in a situation in which one can directly test the quality of the leader’s evaluations. Consider the situations in which the group cannot test the efficacy of those decisions.

Shiller suggests information volatility, herd behavior and informational cascades are a product of scarcity and limitations. The sort of opinions “for which herd behavior is prominent are not matters of plain fact (which way is north), but subtle matters, for which many pieces of information are relevant, and for which limitations of time and natural intelligence prevent each individual from individually discovering all relevant information” (Shiller, 1995, p.181)

This literature undermines signaling theory’s contention that people have true opinions on issues. In low information situations, where people can take cues from others’ behavior, evidence suggests that people will tend to follow this heuristic. If interests, in other words, present information in a way that suggests a majority of people feel a certain way about a particular issue the objective might not be merely to signal a

true preference on the issue but to influence people to adopt this perspective. Images may be particularly effective in exploiting this heuristic because they can make evident a perspective – that an oil spill has devastated a region in Alaska and killed many animals, or that a garbage barge with nowhere to means that we are producing too much garbage – not something that can be discounted as political rhetoric. I will discuss this dynamic later; for now, let's focus on how this may influence an individual's perceptions of others' beliefs. Above and beyond the individual's own ideas on the issue, the effect of a compelling image may be to convince him that others who see the image will undoubtedly be influenced by it. This is a variation of the so-called "third person effect:" the image itself might not directly influence the perceiver, but the evaluation of what others must think might in fact provide the influence. Furthermore, as Bikhchandani et al. find, the effects of these sorts of decisions is consistent with observations in policy dynamics: uniformity of policy images is capable of extreme stability and bursts of rapid change. Their model shows how uniformity in low information situations can produce dramatic change: "small shocks can easily shift the behavior of many individuals" (p.999).

Images, the Media and Policy

There is broad support for the idea that frames are the means by which public opinion is formed, inferred and is induced to shift. Evidence shows that political actors can use frames can influence where and how government responds to political issues. All of this bolsters the argument that interests compete with each other by framing a problem in order to both win over the public and achieve their policy ends. At the same time, the empirical research I've reviewed undermines the argument that interest groups merely

signal public opinion to achieve their policy objectives. But when it comes to the use of images as a medium of influence, and specifically employed as part of a frame contest, there is little direct empirical support. As with systematic analysis of images in general, research on the use of images as a tool or medium of framed communication is very slim indeed. Nelson and Kinder (1996), it appears, present the only empirical findings on the effects of visual framing. Ironical, given that the term framing is a visual metaphor. Even in advertising, a trade that exhibits very sophisticated understanding of the semantics and syntax of images, there is little explicit developed theory on the subject (Messaris 1998; Scott 1994). There have been recent developments (Beasley and Danesi 2002, Messaris, 1997) but even these thorough analyses do not address framing as such.

Still, some research addresses the effects of images on people that can be interpreted as consistent with framing research in general. In an experiment, Tiemens (1970) showed that camera angles can affect the way people perceived individuals in the news. Interestingly, and consistent with framing research that indicates the effect is largely subconscious way of organizing information, Mandell and Shaw (1973) found that camera angles and body movements can influence people's unconscious judgments of others.

Barnett (2003) shows moreover that visual portrayals of the accused can influence the perceptions of those people. Although Barnett is concerned with visual bias, her findings comport perfectly with the framing hypothesis. In her visual experiment, the manipulation was one of two video clips: a "biased" image of a prisoner wearing prison clothes and handcuffs and an "unbiased" version showing the prisoner, unaided, without handcuffs and in plain clothes. Barnett writes that the subjects who saw the accused in the

“biased” clip “evaluated the accused as more dangerous, threatening and guilty than subjects who did not see the visual bias”(p.141). The results might just as easily be cited as evidence of visual framing – the “biased” visual having elicited a different frame in the subject than the “non biased” images. Barnett could in fact be writing about visual framing when she writes that the effect of the images “seems to occur unconsciously from brief exposure before the trial takes place and to remain in long-term memory.” What’s even more interesting is that the visual images were found to be more influential than a verbal disclosure of a prior record. Visual “bias” cause higher ratings of guilt and threat than did the reporting of a criminal record.

Innovative research by Dyck and Coldevin (1992) examines how the response rate and funds raised by a human rights organization varied with the use of different images in their fundraising appeals. Findings indicated that so-called negative image was the least effective – resulting in the lowest response rate and smallest contributions. A no photograph letter resulted in the highest response rate. The request with a “positive” photo, on the other hand, generated the highest average contribution. Although the authors do not take an explicit framing approach, they do note that the negative photo may have had the effect of “causing donors ‘to experience a sense of helplessness’”(p.578). A positive photo, on the other hand could elicit a perspective whereby the potential contributor could see the benefits of her contribution, rather than the helplessness of the situation.

The dearth of research that explicitly examines the framing of mediated images no doubt has something to do with what Newton (2001) refers to as our naïve understanding of photographs. Photography, she writes has often been confused with absolute truth:

In photojournalism, reporting has too often been considered synonymous with recording. . . . Photography's inherent capacity for gathering visual information by recording points of light reflecting off physical entities and for conveying that information in a form that looks so much like the world we perceive with our own eyes fostered an early prevailing assumption about the authenticity of photographic representation. Photographers were deemed recorders rather than reporters, as if their points of view were as neutral as those of a machine. (p. 5-6)

This naiveté still exists. As Newton goes on to describe, even those who work in the news media still hold onto this idea that images are “the last bastion of truth in the media” (p.11). It is easy to forget that images too are a construct of a framed perspective, both literally and figuratively. As Margaret Mead once observed, even if we set a video camera on a tripod and set it to record automatically, it will capture only a specific time and a specific direction (Bateson and Mead, 1942). Information is always selected and other information is always dismissed.

While there is some evidence to suggest that images can have a real effect on how people perceive policy issues, some recent research contests this expectation. Livingston and Eachus (1995) find that the so-called CNN effect – the idea that breaking news drives policy – did not explain American intervention in Somalia, as elites commonly believed. Likewise, Perlmutter (1998) writes that there is a widespread conviction that pictures can drive policy, but in his assessment of four particularly moving images, he finds that the effects are largely projected. Furthermore, he contends that the influence of the picture is constructed after the fact. The causal impact of pictures takes place when later developments influence our understanding of the picture. The picture does not cause change in the way an issue or problem is constructed; it happens the other way around.

The picture itself is re-interpreted based on the issue reconstruction that occurs through consequent events.

But as I've already examined in relation to public opinion in general – it may be that all that really matters is the mediated short-circuit between the policymaker and the mediated message. Dismissing any real effect of images because only the policymaker responds to the images might confirm that Entman's (1989) "democracy without citizens" is operative at a visual level as well.

Perlmutter (1998) writes that the image does not have the "hypodermic" power to overturn policy or influence the public in the way that people – mostly elites – ascribe. But Perlmutter appears to be narrowly interpreting the import of a picture. Pictures, he writes, "can be powerful tools of political argumentation, but what they show and what they connote are largely imposed on them . . . Pictures can change the world, but only if the fire thy fan is already burning – only if those effects follow preexisting channels of prejudice"(p.134). Perlmutter seems to believe that pictures' lack of discrete meaning is a limitation. Other research shows, however, that this is precisely the reason why, when interpreted as a strategic framing resource, pictures are so powerful. Of course, pictures in and of themselves cannot change or redefine problems, but some research seems to indicate anyway, that pictures are effective tools for political interests. Pictures, because they have no discrete meaning and because they rely on connotation, are politically powerful. I will turn to this presently.

Salience and Political Cognition

In 1922, Lippmann observed that the public is dependent on news coverage to construct their vision of public issues and events. Because we are limited in what we can

actually do and observe, our perception is constructed through preconceived and media-constructed realities – what Lippmann refers to as ‘stereotypes.’ Lippmann’s thesis wasn’t just that the media informed people, but that they helped construct reality for them. Lippmann writes:

The real environment is altogether too big, too complex, and too fleeting for direct acquaintance. We are not equipped to deal with so much subtlety, so much variety, so many permutations and combinations. And although we have to act in that environment, we have to reconstruct it on a simpler model before we can manage with it. (p.11)

Lippmann’s ideas on how we narrow experience in order to create meaning – no matter how tenuous that is to the real world – is consistent with empirical findings today. Framing has as much to do with how politicians package issues and the media packages news as it does with human cognition and perception. Nelson and Kinder (1996) argue, “frames are not just convenient tools for the analysis of elite debate, but that they also constitute the cognitive structures by which thinking on matters of policy is organized within the minds of individual citizens” (p. 1073).

We organize complex experience by limiting it. We select certain things as important and dismiss others. We contextualize what we observe by narrowing what we pay attention to. This is, as Jones (2001) writes, evolutionarily useful: “any organism unable to ‘pay inattention’ to irrelevant stimuli while focusing on relevant ones is quite clearly doomed”(p.15).

Mediated frames help us in this respect. They allow for quick context and an understanding of what others are thinking. Gamson and Modigliani (1989) write that “a frame is a central organizing idea for making sense of relevant events and suggesting

what is at issue”(p.57). A frame figuratively and sometimes literally presents a common perspective for people to share.

Consistent with research on social cognition (Fiske and Taylor 1984) and bounded rationality (Popkin, 1992) Nelson and Kinder (1996) argue that people use frames as a group-centric heuristic device. People are preoccupied with their private life; they “seek simple ways to comprehend matters of public policy, insofar as they consider them at all” (p.1056). People tend to use the groups that they see as the beneficiaries of policy to define and shape their conceptions of complex public policy. This calculus, write Nelson and Kinder, “seems a natural solution to the obligations of democratic citizenship. In psychological language, group-centrism functions as an efficient heuristic that conveniently reduces the complexity of policy into a simple judgmental standard”(p.1056).

Furthermore, if someone does have dimensional beliefs about an issue, that is to say if they have thought about it and do have motivated and structured beliefs about the issue, certain perspectives will seem more salient. Certain aspects of perception can, according to Entman (1993), achieve salience – without stress in the text – if it “comports with the existing schemata of a receiver’s belief systems”(p.53).

Most political experience is heavily reliant on what is called top-down processing. Top-down processing, as opposed to data driven or bottom-up processing, refers to conceptually driven cognition that is built on contextual cues that draw on previous experience. Social psychologists have long agreed that much of social perception is thin on data and heavy on inference. People, in other words, “actively construct their own reality” (Fiske and Taylor, 1984, p.141). Political issues are inherently ambiguous,

especially because people can't observe things directly and for many they seem irrelevant to the immediate demands of their daily lives. At the same time, however, people do not deal well with ambiguity; if an issue is brought to our attention, we are unable to think nothing of it. Regardless of how little we elaborate on an issue that is brought to our attention, we are compelled to make sense of it. Fiske and Taylor write, "Organized prior knowledge shapes what is perceived and recorded into memory."

Frames do more than just narrow experience into shared comprehensible bits; as Entman argues above, when we perceive certain aspects of an issue as being salient, that specific perception *promotes* a particular causal interpretation and moral evaluation. Frames are the schema or stereotypes that we construct to filter our experience so it makes sense to us. Frames elicit meaning.

The power of frames to invoke meaning is the critical linkage between the micro level psychological response to issues and the more manifest political response. The connection between media, public opinion and interests vying for policy action coalesce around the dynamics of attention and salience. I turn to this literature now.

Attention, Preference and Political Choice

According to the literature, salience and framing are critical variables in how the media covers an issue, what policy action is taken and the shape of public opinion. Thus far, findings indicate that people will tend to interpret a public problem largely – but not exclusively – on the basis of how salient the particular issue is in the media and the particular frame in which that issue is presented both by the media and political interests. Agenda setting research points out that media (and those who communicate through it)

are influential in telling what people to think about. Framing research tells us they can be successful in influencing how we think about those issues.

Furthermore, we see that whereas the salience of an issue is not always reflective of the policy priorities in government, the range of opinions and perspectives presented by the news media tends to be “indexed” or limited to the range of the debates of elite sources (Bennett, 1990). We also know that elites tend to be ‘constrained’ by what they creatively interpret as public opinion, but that this constraint does not preclude attempts to influence how the public perceives the problem at hand.

The negotiation of newsworthiness ensures that what gets selected as news is a collaborative effort of news workers and their sources. But aside from the President, the press (and whatever idiosyncratic notions they may have about what they think the public wants) tends to have the upper hand in defining what issue at any particular time is the salient issue. The perspectives that are offered on that issue, however, fall much more in the domain of actionable strategy. Political interests, in other words, cannot easily bring issues to the media and public agenda, but once the issues appear, they (or at least some of them) have the potential to shape how the public perceives the problem and presumably, what policy action will eventually follow. Salience, in short, may be less controllable, largely a matter of opportunity, while the perspective that the press presents on that issue is contestable in within limits – especially by elites and especially during “focusing events” or “critical moments.”

As Jacobs and Shapiro (2000) contend, this is not persuasion in its conventional sense. Persuasion is defined as a change in underlying beliefs and values – usually a message-based attempt to alter long-standing preferences. Simons (1976), for example,

defines persuasion as “human communication designed to influence others by modifying their beliefs, values or attitudes” (p.2 in O’Keefe). Framing, however, influences how people think about issues not by changing their preferences but by changing *which* preferences they perceive as relevant to the situation. It is this psychological dynamic that provides the microfoundations for mass public behavior.

We are limited in what we can attend to at any one time. Jones (1994) argues, moreover, that we are further limited by what concepts we can bring to bear on anything that we attend to. For each and every issue, our immediate political choice could be made on the basis of a number of different long-standing preferences or political schemata. If the choice is made on the basis of some momentary salience, then it we have come to expect that successive choices may not appear consistent with the first.

When an issue is not salient for people, they may express a vast array of preferences that are contradictory. People are free to evaluate an issue differently each time. When an issue becomes important enough, they will tend to form a specific way of evaluating that problem.

Framing research shows us that consistency and inconsistency in choice is explained by the context in which we evaluate the issue. Contextual cues will make one of them seem more relevant than the others. This is an important point because issues framed one way may cause people attend to certain preferences. When the frame shifts, people may form new preferences because different values will suddenly seem relevant. As Zaller (1992) explains it, if someone is disengaged from politics, contextual cues will be derived from a hodge-podge of recently consumed information (including social cues); those of a particularly partisan disposition, however will take their contextual cues from

partisan sources. Preferences, in any case, will tend to become increasingly firm as the issue's salience increases and people begin to form a schematic or belief system.

Jones (1994) writes that short-term memory limitations – what he calls the “bottleneck of attention,” constrain the beliefs or preferences we can use to evaluate a situation. Change in choice is nothing more than a shift in which preferences, beliefs or values we believe are pertinent to the issue. The consistency of that evaluation is dependant on the sort of relevant belief networks we've constructed and the apparent contextual cues. But for a large portion of the people who have not yet constructed specific policy preferences, a shift in the context of an issue, will tend to change evaluations or choice on that issue as well. Belief or preference change is not necessary to shift how we think about issues. All that is necessary, given our limitations, is to change contextual cues.

Opinions can shift in apparently capricious ways. Attitudes, beliefs and values, however, are long-standing dispositions. People can respond to political questions inconsistently without the slightest hint of dissonance. Frames activate certain preferences upon which we base our political decisions. Context – not belief change – becomes the basis of most (but not all) mass opinion change. Understood this way, public opinion is a complex interaction of shifting, yet focused issue attention, contextual cues and evaluative bottlenecks.

Meaning from Images

In an attempt to explain the failure of President Bush to persuade the public that the U.S. occupation of Iraq was in fact more successful than media coverage had presented it, David Gergen, an editor of U.S. News and World Report at the time,

concluded that images had undermined the President's efforts to frame the story. "We are such a visual society now," Gergen said, "that what we can see on television . . . often overwhelms rhetoric. And if people's words don't match the pictures that people are seeing . . . then the rhetoric tends to be discounted" (Gergen, 2003). Gergen, who has served four presidents of both parties and been dubbed "Master of the Game" (Kelly, 1993) underscores a central point of my hypothesis: images have the capacity to be much more influential in shaping how people perceive political issues. It is stunning, then, that images remain so understudied by the disciplines most concerned with political communication.

Unlike communications research and political science, psychology and cognitive science have long debated the significance of images and the importance of vision in problem solving. Freud's (1965) *Interpretation of Dreams* argues that images are a principal means by which we represent and therefore understand the abstract concepts that otherwise float unreachable in our unconscious. Lakoff (1987) and Lakoff and Johnson (1980) argue in a similar vein that images form the basis for our abstract thought. Indeed, they argue that our concepts about the world, our ideas and mental models are based on image-schemata. This cognitive theory is based on the idea that meaning is rooted in perceptual experience. Because we are primarily visual creatures, much of our conceptualizations about the world are rooted in visual perception. Gregory (1970, 1996) argues that our abstract thought is developmentally linked to the way we perceive. Pinker (1980) agrees that images may be helpful in reasoning and some abstract problem solving, but he warns us that we can't get too carried away with the idea that all

thoughts are images (1997). Manovich (1993) sums up the contemporary state of cognitive science discourse on vision as such:

If for Freud vision was the original, primordial language of humankind, today cognitive psychologists speculate that the continuous, analog representational system of mental images emerged first, followed by the system for propositional representation (language). I once saw, therefore I think.

Gergen's conclusion that images can overwhelm rhetoric contradicts Perlmutter's (1998) argument that the inherent ambiguity of images weakens their political power. Although images can indeed be ambiguous, research in cognitive science, communications and political science indicate that this ambiguity is precisely the force behind images' ability to influence how people think. People, as I've already discussed, evaluate situations from a singular frame of reference. We cannot hold at the same time several evaluative positions on an object of our attention. In a strictly cognitive sense, we are only capable of viewing an object from a singular point of reference. Although it is slightly heuristic, the old image of the duck/rabbit illustrates my point. The line drawing is the epitome of an ambiguous image – neither the duck nor the rabbit is a more “proper reading” of the image. What is important is that we only see the duck or the rabbit; we cannot see both at the same time. We can shift from duck to rabbit and rabbit to duck, but visually, we are stuck in a single frame of reference. We operate similarly in our concepts and thoughts: in psychology, it is a truism to state that people avoid ambiguity. Certainly, the idea that our conceptualizations are based on perception supports this (Lakoff and Johnson, 1999). Pinker (1997) writes that images and pictures may be ambiguous, but “that thoughts, virtually by definition, cannot be ambiguous” (p.297). Images (and even

words) may be ambiguous, but the meaning we take from them is not. In other words, “the ‘language of thought’, in which knowledge is couched, can leave nothing to the imagination, because it is the imagination” (p.70).

We may disregard an image as unimportant and pay it little attention, but once it does become important enough for us to pay attention to, once the image is salient, we do not allow it to be ambiguous. We have learned to see (and survive) by correcting for visual ambiguity (Pinker, 1997). Our retinal image of what we see is inverted but we have learned to see things right side up. Vision is, as Marr (1982) writes, “the process of discovering from images what is present in the world, and where it is” (p.3).

Along with this tendency to avoid ambiguity, we evaluate and associate meaning with images in order to overcome it. Interpreting an image is predominantly a top-down process. And this, according to some research, can make images more meaningful than words.

Turner (2000) outlines the idea of creative imposition of meaning in his theory of “backstage cognition.” According to Turner, understanding how we reason and make choices is like understanding how we see: “just as we do not notice how we compute color constancy in the visual field, so we do not notice the backstage cognition of reason and choice” (p.265).

Using an advertisement to illustrate his argument, Turner describes how a British Airways advertisement backfired when its creators mistakenly evoked unanticipated and unwanted associations in their blending of concepts. The series of advertisements were presented in magazines and newspapers. Each advertisement had a large photograph and a small inset photograph, accompanied by a phrase to help integrate the two pictures. The

advertisement in question had for the large photograph, a sepia-toned image of an attractive mother holding a baby in her arms. In the place of the baby's head, an inset photograph, set off in higher-contrast, depicted the head of a businessman reclining comfortably in an airline seat. The creators of the advertisement had intended the audience to create an association of comfort and peace through a pair of juxtaposed images. Instead, British Airways received angry complaints that the ad was demeaning to flight attendants.

Turner argues that political reasoning occurs in non-conscious associations that immediately, but creatively appeal to the receiver. Conceptual meaning is created through a seemingly instantaneous set of associations. Meaning is considered "natural and inevitable," no matter how subjectively constructed. Like symbolic response, a set of inputs will create a projected meaning that is created, but not consciously deliberated on. Choice is based on non-conscious or schematic associations –meanings that come to mind, dependant largely on what has come before (p.270). As Barry (1997) says, "we do not see what is there, but rather – preconditioned by need or prior experience – we see what we want or expect to see" (p.54).

What is powerful about this form of meaning making is the fact that the photographs do not have an explicit interpretation; the viewers of the British Airways advertisement unconsciously created their own meaning. People associate meaning with the photographs without being told what it meant or feeling as if they were reading in meaning. People, Turner writes, "did not think they were 'interpreting' at all; they thought they were responding to what was 'there'" (p.270).

Messaris (1997) makes this point when he concludes that images are uniquely capable of being influential because they offer implicit analogical or causal associations not explicit ones. Messaris argues that this implicitness is a strength because it allows the viewer to persuade herself:

Because a visual argument cannot be entirely explicit, making sense of it may require of the viewer a greater degree of mental participation than would otherwise be the case. In a way, therefore, the viewer's interpretation of a visual argument is more a product of his or her own mind than it would be if the argument were completely explicit to begin with. Indeed, each viewer's interpretation is likely to contain nuances of meaning that literally will make it her or his own creation. If there is any truth to the traditional assumption that, other things being equal, people are more likely to adopt a proposition that they themselves have been induced to construct, then the implicitness of visual syntax and argumentation can be seen as a potential strong point of the process of visual persuasion (p.xviii).

Messaris also argues that photographs are influential because they are perceived of as proof that some event or happening has occurred. Neuman, Just and Crigler (1992) say as much when they quote one of their interviewees: "Television is good for, if something is really ugly. Taking a picture of it and, say, well this is what we've been telling you about. Here's a picture of it" (p.58). Images document actual events – whether these events happened or not. Because they reproduce reality so faithfully, we often take photographs as evidence, especially when they are recreated in our news media. For instance, a picture of a swath of cut down trees can be seen as proof that a clear cut exists. A picture of a starving child vividly shows us that people are starving. Pictures do this better than words.¹³ There are libraries full of books that condemn the press for bias

¹³ But again, these pictures do not imply a causal argument. In the case of news stories, text may be essential in attributing this sort of meaning. Perlmutter (1998) suggests that it is text which gives the photograph meaning after the fact. My purpose in this dissertation is in part precisely to examine this

in what they write or say about events and issues. There is very little written on visual misrepresentation. And this is why, perhaps, that when we do become cognizant of visual trickery we can become so outraged. Consider, for instance, the computer-enhanced shading of O.J. Simpson's face on the cover of Time magazine in 1994.

Photographs also vividly represent the real world, as we perceive it. Messaris (1997) argues that photographs, therefore, can "call forth a variety of 'preprogrammed' emotional responses" (p.xiii). Recent research on perception, which suggests that emotional or limbic responses to sensory experience precede rational processing, supports Messaris' claim (Le Doux, 1986, 1993, 1994; Damasio, 1994, 1999). Findings, contrary to what was previously believed, show that signals from the eye travel first to the thalamus and the amygdala, before another signal is sent to the neocortex. The implication here is that images, which more closely mimic real experience and are perceived similarly, will be cognitively processed – and emotionally reacted to – much more immediately and perhaps viscerally than the written word.

Gergen says that images overwhelm rhetoric. How they do this is still something of an empirical question. Let me propose, however, the following based on the above research. Images implicitly summon an interpretation from the viewer that is immediate and "back-stage" or unconscious (Messaris, 1997; Turner, 2000). Interpretation of this sort is similar to top-down reasoning or schematic processing that is prevalent in the ambiguous experience of visual perception (Barry, 1997; Gregory, 1970) and social cognition (Fiske and Taylor, 1984). Additionally, photographs are persuasive because they are seen more as evidence of an event or happening than a perspective on that event

question that remains empirically unresolved. The question is: do photographs have the capacity to influence public policy preferences exclusive of text?

(Messaris, 1997, Newton, 2001). Finally, photographic images, which mimic real-world experience, are cognitively – and emotionally – processed exactly as we would perceive any other visual stimulus (Messaris, 1997). We can infer from this that our experience of visual images may be more visceral and emotionally involving than written communication and we could create an emotional bias prior to conscious judgment. We may be “emotionally ‘primed’ toward accepting or rejecting certain ideas or people through influences of which we never become aware” (Barry, p.21). Our preferences, in other words may be colored by emotional responses prior to cognitive engagement (Zajonc, 1980).

If all or part of this holds true, visual communication, conceivably anyway, would be an especially effective means to frame a political problem. Images could play an important role in how people perceive public problems – whether that effect is limited to specific elites or the public as a whole. Meaning is created emotionally, unconsciously and uncritically. No matter what the current frame of an issue is or was, the right image could at the right time, as Gergen puts it “overwhelm rhetoric.” In advertising, as Messaris points out, considerable effort is undertaken to ensure that the meaning created is the one desired. But as Turner illustrates, the desired effect is not guaranteed. Meaning is both powerful and nebulous. In the news media, where images and meanings are not selected for an overtly persuasive effect, interest groups must compete to define their meaning. I turn to this competition now.

Routine News, Elites and Dramatic Events

Gamson and Modigliani (1989) argue journalists are part of the culture that they report on, but there is strong evidence to suggest that their news routines and journalistic

norms and values have a strong systemic effect on what actually becomes news, which may in turn influence cultural meaning. It is not so much the journalists themselves that influence what becomes crystallized in public discourse, as it is the systemic patterns of the news routine and expectations placed on those journalists.

News routines, news values and the quasi-professional journalistic norms largely define what is news, how it should be reported and who will be used as a source. For the most part, the news is populated by elite sources and values that are not offensive to an audience, but at the same time, the stories are told in ways that can be at times beneficial to neither.

Gans (1979) finds that journalists populate the news with elite sources not for any overt ideological reason, but because they are positioned to give the journalists what they need. Elite sources are geographically and socially proximate, but more importantly, they are able to assist journalists in their daily work that is dominated by deadlines. Elites have resources to provide journalists with what they need – quotes and information that are taken as authoritative enough for the rules of objectivity. For the journalist, in Gans' words, elite sources have “the ability to supply suitable information” (p. 121). Suitable, that is to the journalist who is pressed for time and restricted by conventions.

Tuchman (1972) likewise finds the strategic ritual of objectivity that helps protect journalists from the risks of their trade – deadlines, libel suits and reprimands, but it fails to produce anything close to an objective account of events and issues. Indeed, according to Tuchman, the very procedures used by reporters to establish objectivity “constitute an invitation to selective perception” (p.676). News routines such as the judicious use of quotation marks and presentation of conflicting possibilities are insidious because they

leave the impression of being objective even when – or especially when – they do nothing of the sort. Coupled with this, Tuchman writes “common sense plays a central role in the assessment of news content” (p.674). Journalists, so as to not appear un-objective, will not report information if it appears to contravene common sense. Even though the majority of what makes news is what people say, to put the point slightly differently, not everything that gets said is considered newsworthy. As Tuchman writes, “newsmen will not print as ‘fact’ statements which contradict common sense”(p.674). The journalist’s necessity to appear objective, in the end, is much more important, professionally speaking, than his or her ability to offer a truly comprehensive story.

If, therefore, journalists are condensers of meaning rather than creators of it, as Gamson and Modigliani (1989) write, it appears that they are condensing a very particular, if not systematically selective vision of meaning. Because of the twin obligations of news routines (Gans 1979) and values (Tuchman 1972) elite sources have a stronger hand in what becomes common sense – or at least as it is reported in the media. As Page (1996) writes, “public deliberation may be harmed because the media rely heavily upon official sources for news stories.” Or as Bennett (1996) argues, press coverage of policy debates is indexed to the public statements of authoritative officials. Even when there is widespread disagreement among elites, the diversity of opinion that appears within the press is still bounded by elites. But the impacts may be even more profound than this.

Popular media’s coverage of policy debates is not just a running commentary on what is going on. It actually confers authority and exercises power. What gets reported in the media has real effects on what policymakers do (Herbst, 1998) the policy agenda

(Soroka, 2002), how policy gets made and negotiated (Kernell 1997) and it can in itself be the equivalent of policymaking (Cook, 1998). The dialogue that appears in the press is part of the policy making process.

If press coverage affects policy making and it is systematically limited in what it will and will not communicate, and those limits are deferential to the status quo, it becomes an extension of the power structure. The resulting constructed reality – including all the questions, assumptions and potentialities, what is considered relevant, what isn't is biased in favor of those with power and against those without. Molotch and Lester (1975) write, “a crucial dimension of power is the ability to create public events. And since access to the media is a crucial ingredient in creating and sustaining the realities of publics, a study of such access is simultaneously a study of power relationships” (p. 69). This is consistent with the mechanism of power as hypothesized by Gaventa (1980). As has been discussed, Gaventa argues that power of A over B can exist even without apparent conflict. Power exists with the ability to shape the terms of the debate and determine what is legitimate and valid. Press routines and values appear to provide a systematic means by which some interests are dominated.

But this power is mitigated by other equally important journalistic values. Journalists have requirements for what is news and what isn't and what is a good story and what isn't. Journalists have a need for a good narrative, human interest and above all conflict and these can substantially weaken and undermine the claims of sources.

Sources cannot expect their perspective to be published or broadcast without the “other side” being presented as well. What they try and promote as central may get buried beneath another idea. While it is almost guaranteed that that “other side” will not come

from groups that don't appeal to "common sense" (Tuchman 1972, 1974) or from within the "sphere of deviance" (Hallin 1986), any conflict can as Linsky (1986) argues, derail policy goals. If coverage of a particular policy becomes negative, there is a pervasive belief among governmental employees that this decreases the chances of success for policy goals.

Beyond conflict, the press is interested in simplicity. And simplicity does not lend itself to the negotiation of good policy. The need for simplicity can impinge on the politician or policy entrepreneur's ability to sell what it is he has to sell. Cook (1998) writes, "journalists . . . are looking for something easily described, and preferably an easy division between protagonists and antagonists." Journalistic needs for a story – a narrative, drama, good visuals, brevity – are not usually conducive to the objectives of a government source.

This symbiotic-conflicting relationship is perhaps best envisioned in what Cook calls a "negotiation of newsworthiness." Sources may control the "stages, the actors and the lines for the accounts that the journalists create," but the journalists largely control the narrative account of what happens (Cook, 1998, p.98). Sometimes elites can provide the press with what they want, resulting in some degree of public relations success. Other times, however, when they lose "definitional control," the news media will go elsewhere for its definitions and frames. In Cook's words, "while governmental processes provide the stages, the actors and the lines for the accounts that journalists create, the latter cut and paste the elements together according to their own standards of quality and interest, which may well diverge from the optimal 'spin' of the politicians"(p.98). The press and elite recognize this relationship and the astute political actors will retain significant

definitional control as long as they give it to the press in the manner that the press expects it. As Larry Speakes once said, “You don’t tell us how to stage the news, and we won’t tell you how to cover it” (p. 108-09 in Cook).

Furthermore, the press’ collective gaze is occasionally drawn away from elite sources. The obvious example is an accidental event – when something unexpected, exciting (usually visual) and dramatic happens that is deemed newsworthy by the press. When an “accidental” news event happens, reporters will – for a time anyway, divert their attention from their routines of elite source reliance. Molotch and Lester illustrate this point in their analysis of an oil spill off the coast of Santa Barbara. They conclude that an accident can subvert the usual routine gathering of news: “we define an accident as an occurrence which becomes an event inadvertently, that is, without the planning of those who caused the happening in the first place. The accident can thus be contrasted with the more routine sorts of events that dominate the public press and result from purposive activity staged with event potential clearly in mind” (p.258). The oil spill was an aberration of what can be considered normal reliance on elites for news. Molotch and Lester write, “Men of power and organizations with routine access to media had not meant a public event to happen. It was, indeed, an accident. As such, it came out of the blue and initially transcended the normal scheduling of events and the routine mobilization of bias which characterizes the extant social organization of news” (p.258).

As I have discussed above, news creates meaning by selecting elements that are salient and glossing over others. Frames, which are nothing more than selected facts that evoke a specific evaluation, are one way of looking at this. News becomes “an arena of struggle over the meaning of events, the existence of problems and the search for

solutions” (Lawrence, p.8). During times of routine newsgathering, elite sources, which are deemed more newsworthy, have more power to define what facts are worth reporting – what facts are salient about the public issue.

Accidents and Dramatic news events can have significant impact on that structure. Further, as Bennett and Lawrence (1995) argue, occasionally, when focused through a particularly dramatic news event, a public problem can be re-defined in a way that marginalizes the mainstream and mainstreams the erstwhile marginal. Further, Lawrence writes that the “problems and problem definitions arising out of event driven news . . . are more volatile and difficult for officials to control or to benefit from and are more open to challengers”(p.9). Lawrence examines police use of force incidents that are captured in both routine and non-routine situations. Routine news allowed officials to individualize brutality incidents and promote a frame of isolated and appropriate response to violent incidents. But the Rodney King beating, captured on videotape and broadcast nationwide, allowed activists usually excluded from the construction of meaning to offer a re-interpretation of police brutality as a systemic problem within the LAPD. Lawrence writes, “dramatic ‘accidental events’ can encourage journalists to open the news gates to more critical voices and views” (p. 85). News events can create the focus and salience needed for the public to individually and collectively re-frame how they see an issue. An event that makes an issue salient – *and* makes new aspects of that issue salient both capture attention and evokes new evaluative responses. Journalists’ incentives to report the official line on issues are not absolute. Journalists must balance the official view with what is common sense. Lawrence writes, “Official responses to accidental news events have to contend with the narratives suggested by those events. Official responses that are

too far afield of the narrative suggested by an event, such as Gates' 'aberration' claim, have trouble reasserting control over the news."

Events as Molotch and Lester argue, do allow a brief window for activist and non-elite sources to appear. And events like the Rodney King beating can be so dramatic that they are too compelling for the media to pass up. But these explanations underplay the fact that in each case, it is the images and photographs provide the public, the journalists and the elites with alternate explanations that contend with the routine and previously dominant frames. Photographs of these events – oil spills, police brutality, and garbage barges – make evident an alternative explanation. Photographic images, as Messaris (1997) and Newton (2001) point out, are interpreted as truth, almost as if we had seen it with our own eyes. While the syntactic meaning of photographs can, at times, be indefinite, the documentation of ecological ruin, police brutality and other such dramatic events comes across unambiguously. It is my argument that it is just as much the photograph – captured by however many photographers or news outlets – as it is the event that makes an alternate interpretation possible. The inherent capacity of photographs to be taken as intuitive truth offer a powerful means construct or re-construct meaning. This may appear to be splitting hairs, but the impact (on meaning, the diffusion of ideas, problem construction is significant.) My argument is that it is photographs of the events, not that the events happened themselves, that provide for – that actually present the public and policymakers with – an alternative explanation and interpretation. Without the photographs making another perspective salient, what competes with the dominant frame? Journalists will have little incentive to contradict the dominant sources. The

sources themselves will have little reason to retreat. The public will have little reason to doubt the accepted frame.

Salience, Frames and Public Problems

Public problems are inevitably a hybrid of objective reality and inter-subjective creation. Regardless of the particular problem – institutional corruption like police brutality, or ecological concerns like global warming – the manner in which it is perceived, communicated about and institutionally dealt with is a product of individual and shared meaning. This is not to say that one needs to take a strict social constructivist position when looking at public problems (Best, 1981). It is enough to recognize that the problem as it is understood, reported on in the news media and framed by interest groups is not a mirror of the objective condition. The literature of mass communication and political science, for instance, is dense with findings that show the media to be instrumental in what the public considers the pressing issues of the day (McCombs and Shaw 1972; Iyengar and Kinder 1987) – especially in problems related to environmental destruction, where either the technical quality of the issue or its physical location ensure that media tend to be the only way that most of the public is made aware of the problem (Soroka 2002).

Real problems exist *out there* in that there are people who have been physically assaulted by police and there is empirical evidence of increasing global temperature. But the government, political interests, the media and certainly the mass public cannot attend to all problems at once. Moreover, as Funkhouser (1973) points out, the “realities” of issues like drug use, Vietnam, smoking and population, to name a few, did not correspond to the volume of news coverage on the issues. In addition to the media focus,

our capacity to attend to problems is cognitively (Jones, 1994) and socially limited (Shiller, 2000). Research on the public issue agenda (Downs, 1972; Baumgartner and Jones, 2003, for instance) shows that we tend to focus on particular issues for periods of time. Objective conditions do not dictate the issues we attend to; nor do they explain the ones we ignore. Explanation of this agenda is an empirical question and it forms the basis for one part of this project. But basic issue salience is only part of the story.

Given that there is also no objective interpretation of what a problem means, what accounts for a particular view of a public problem? In order for issues to mean something, we must evaluate them from a particular perspective. We construct what a problem means by perceiving as salient certain aspects of the problem, while dismissing others (Jones, 1994). People, in other words, frame their experience to give it meaning. We also depend in part on external and social cues to direct our attention (Shiller, 2000). In this way, the social construction of problems is a concert: a collaboration of our shared cognitive structures and limitations, the routines and expectations of the media and the objectives of policy makers and political interests.

This project is interested in how images play a role in what problems are defined as important *and* how meaning of those problems takes shape and changes. Although the dissertation is limited in scope, it does contribute to and draw on research that examines why particular issues rise and fall in the public agenda, surface in the news media and, eventually inspire policy action? Why do people, the media, or the policymakers attend to certain problems and not others? Why (on the very rare occasions) do people change how they perceive a problem? These are all empirical questions central to research in media and public affairs. They ask something about areas we take for granted: democratic

responsiveness, press and individual competence, the dynamics of political power, the psychology of political decision-making and the social creation of problems. Moreover, the question involves the complex interaction of three principal groups and real world events: the public, the press and the political policy makers. What, in other words, is the impact of media on the public and on policymakers, the public's influence in policymaking and on the stories that the media covers, and how do those involved in the policy process influence media coverage and public opinion on the issues.

Chapter 3 – Methods

My dissertation aims to explore how political interests use mediated messages to influence public policy and public opinion of environmental problems. In particular, I'm interested in finding out how different modalities affect how policy makers and the public make choices about the environment. I have focused on greenwashing as a specific example of how policy is forged in the interaction of interests, policymakers and the public – that is how interests can present themselves as being “green” for the purpose of favorable policy objectives even in the face of contrary practices.¹⁴ The problem I aim to address is whether these groups influence the public and policymakers and how and to what extent text and photographs are instrumental in the process.

Signaling theory argues that public lobbying fairly or accurately communicates the salience and preference of public opinion to policy makers. Public opinion in this construction is not malleable, and when clearly signaled, influential. I have argued otherwise. With the support of a large amount of public opinion literature, I contend that interests can indeed influence public opinion both in terms of preference and salience. Further, I have made the additional claim that images are an under-recognized component to this process of influence.

To resolve this, I must first determine the extent to which text and images, as the basic structural communicative elements of the public dialogue on the environment, can have an effect on policy and public opinion. Signaling theory disputes the contention outright, and the dominant theories of public opinion formation and change regard

¹⁴ Obviously, greenwashing can be employed for purposes other than policy objectives, such as improving investor relations, but the dissertation focuses specifically on the question of policy action.

images as being without influence. One way of operationalizing this question, then is to ask it as follows:

(1) What influence do the news media's photographic and textual agendas have on the salience of environmental concerns in the public and policy action in congress? If the photographic and textual agenda both influence public and policy salience, do the modalities have different (or identical) effects on the salience in policy action and public opinion?

Phrased as such, this question is both testable and gets at one core part of what concerns us here, which is: do photographs and text as the structure of public dialogue and construction of public problems influence how people think about the environment and how policy makers act. I have limited the question to an investigation of salience for two reasons. First, influencing the salience of an issue is a key component of public opinion (Zaller, 1992; Jacobs and Shapiro, 2000; Jones, 1994). Human attention is limited; different issues constantly vie for attention, pushing others out of the way. If media attention – whether pictorial or textual can raise the salience of any one particular problem in the collective minds of the public then public opinion changes. If images can affect the perceived salience of environmental issues by the public, then by definition they have influenced public opinion. If images have an effect on the type of legislation considered by policymakers then they have influenced the policy agenda. Second, salience is more broadly measurable component of the movement of public opinion and policy action. Agenda setting research is built on salience as a measure of influence (McCombs and Shaw, 1972; Iyengar and Kinder, 1987; Soroka, 2002; Jones and Baumgartner, 2003). I will discuss this question in further detail presently. Finally, salience of particular facts as opposed to complete issues is a means by which preferences themselves are altered. According to work on the psychology of framing effects (Nelson,

Oxley and Clawson, 1997; Nelson and Oxley, 1999) framing can cause opinion change by raising – that is making more salient – particular facts or considerations. In contrast to persuasion theory, framing achieves a change in preferences or opinion by altering the “psychological importance, relevance, or weight accorded to specific beliefs with respect to the issue at hand” (1999, p.1043).

Still, salience is only part of what is under contention here. Photographs and text disseminated through the media may indeed influence public opinion, but unless interest groups – and as a matter of concern here, groups engaged in greenwashing – engage in this dialogue, then the potential to influence the public and policymakers remains just that – potential. Photographs and text may influence people, but unless the groups are actively engaging in this effort, then my hypothesis, at least insofar as it concerns greenwashing efforts will be unsupported.

Equally important is whether greenwashing, with its concomitant pictures and text, can affect peoples’ stated preferences or opinions. Salience is one component of public opinion. Increasing the salience of an issue will affect *what* the public is thinking about, which is no small matter, but unless that influence extends to preference on the issue, there is little political gain to be had. Past research indicates that influence of this sort can and does happen in the form of framing or priming (Iyengar and Kinder, 1987; Nelson and Kinder, 1996; Nelson, Oxley and Clawson, 1997; Nelson, Clawson, Oxley, 1997; Nelson and Oxley, 1999; Druckman, 2001) What has yet to be determined is to what extent the framing effects are the result of images or text. The research question to be examined here, therefore, will be as follows:

(2) Are there discrete framing effects within advertising messages – that is, are opinions affected by text, images, or some combination of both?

Literature outlined above suggests that there are several contending explanations for what interests are attempting to achieve in political communication in general and public greenwashing campaigns in particular. One currently accepted theory is that groups are signaling public opinion – that is indicating to policymakers the preferences and salience of the issue that is latent in public opinion. I have suggested, by way of providing a broad array of empirical evidence and scholarship, that groups may be doing more than this. My argument is that interests are in fact artificially raising the salience of these concerns, bringing it to the attention of the public and the policymakers, thereby increasing the political pressure to address the issue. Further, interests are not only raising the salience of the issue itself, but they are raising the salience of particular facts thereby raising the priority of a particular (and desired) evaluation of the issue. Interests are framing the issue for the public and the policymakers in a way that promotes their political objectives and proposed solutions. I am finally arguing that photographic images play a role in this effort and that they have been overlooked in empirical work on opinion change and political influence.

My objective, therefore, is to empirically test these arguments by answering the two research questions above. I will answer them using a variety of methods: an agenda setting study and an experiment.

The agenda analysis will test the overall aggregate levels of salience in the media (textual and image), public and policy agendas and how change occurs across time. By using time-series statistical methods, I will infer the order of events – the appearance of

photographs and news stories (text) in news media discourse, the change in salience in public opinion and the change in attention by policymakers. This analysis will provide us with an understanding of how these changes are related over time – which change precedes the other and by extension, what influences what. Further, I will also be able to isolate the effects of the text agenda from the pictorial agenda, determining what effect if any is exclusive to each modality. My hypothesis is that photographs as well as text have an effect on levels of salience in public opinion and the policy agenda.

The experimental design will test the effects image and text framing have on the preferences of the audience. A collection of experimental manipulations will determine whether images by themselves have the ability to change the political choices people make or if it is some combination of images and text. So far, this is an un-examined question in political communication. While Nelson and his colleagues (Nelson and Kinder, 1996; Nelson, Oxley and Clawson, 1997; Nelson, Clawson, Oxley, 1997; Nelson and Oxley, 1999) have examined the effects of framing from a variety of perspectives, including photographs, they have left unexamined the relative importance of photographs and text. While they examine whether frames matter and the effects that frames have on opinions, beliefs and belief importance, the question of what contributes to this effect – text or photographs – is still unresolved. As the authors write themselves, “we have opted for greater experimental impact at the expense of some precision . . . We will not be able to link any effects we observe to any specific aspect of the stories [photograph, text, headline]” (p.1046). By answering these questions, I hope that we might have a better understanding of how the public and policymakers are influenced by political interest groups, how framing works and finally the relative importance of photographs and text in

the process of political influence. I now turn to a detailed discussion of measures, variables and operationalization of methods for each question.

Agenda Setting Analysis

The initial question has been designed to better understand how the relative salience of environmental photographs and text in the news media have an effect on policy action and public opinion.

As I have already indicated this will be an analysis of the relative salience of environmental issues in the press, public and policy networks over time and, importantly how they affect each other. Media agenda setting research has been well established in mass communications research following McCombs and Shaw's (1972) Chapel Hill Study. Over 100 studies have since developed their hypothesis into a fully realized theory (Soroka, 2002; for reviews see McCombs and Shaw, 1993; Rogers et al., 1993). Political science has likewise developed a tradition of research that examines the dynamics of policy and media agendas and policy and public agendas (Kingdon, 1984; Baumgartner and Jones, 1991, 2002; Jones and Baumgartner, 2003). Soroka's analysis of the dynamics of agenda setting in Canada (2002a, 2002b) is the first to bring policy research together with media agenda setting.

Soroka (2000, 2002a) constructs an expanded time-series model of the agenda setting process that integrates multi-directional influence between the media, public and policy agendas as well as real-world factors. His model forms the basis of my agenda setting analysis. As outlined in Soroka (2002a, p.120), I will estimate the model using Zellner-Aitken Seemingly Unrelated Regression (SUR) a variant of Vector Auto-Regression (Bartels, 1996), specifically suited for a system of equations where the

independent variables are identical (Soroka, 2002b, p.127). Interpretation and presentation of results will depend on Granger exogeneity tests and impulse response functions (p.128). The model, as first sketched by Soroka (2002) is illustrated in Figure 3.1.

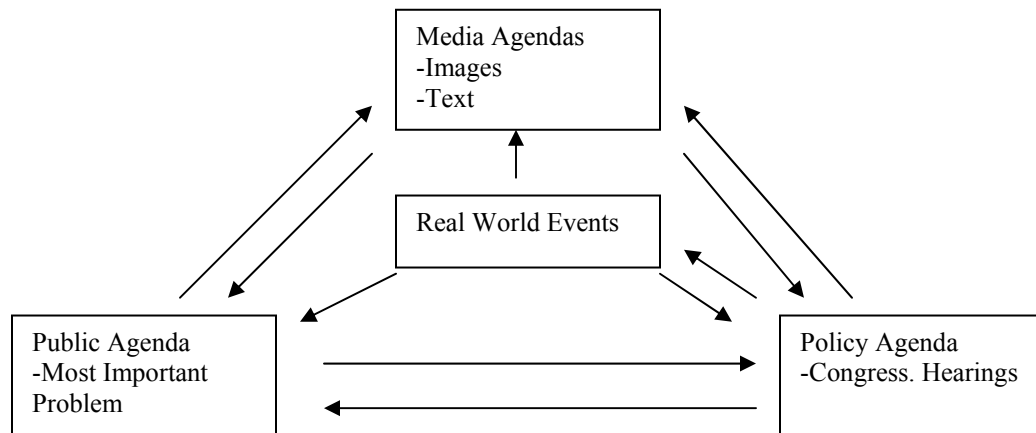


Figure 3.1: Model of Public Policy Agenda Setting Process

This agenda setting study will rely in part on data on congressional hearings compiled by Baumgartner and Jones' Policy Agendas Project (PAP). Data on the textual media agenda and photographic agenda were gathered by means of separate content analyses. Details on the collection of data, creation of measures and models and analysis strategy are explained below.

Measuring the Print Media Agenda

In examining the role of how the media influences public opinion and policy action, a central concern surrounds the question of how one should measure the media agenda. Some analyses, from the earliest research (McCombs and Shaw, 1972; Funkhouser, 1973) to more contemporary investigations (Eaton, 1989; Bartels, 1996), cast a wide net and construct an independent variable that represents a collection of

media outlets – including different modalities (newspaper, television, magazines, internet) and different levels of diffusion (national, regional, local).

Agenda setting work aimed more at discerning the specific effects of different media have focused on the attention focusing effects of specific types of media. This includes modes of the news media itself. Behr and Iyengar (1985) examine the role of television; Kellstedt (2000) uses newsmagazines as his key independent variable. Other researchers have focused exclusively on the effects of newspapers (Protess, et al., 1985, Salwen, 1988; Golan and Wanta, 2001) and the Internet (Roberts, Wanta and Dzwo, 2002). Research on agenda setting has also examined local and regional effects and cultural interests (Ghanem and Wanta, 2001; Atwood, Sohn and Sohn, 1978).

The determination of how to construct an independent (or in this case endogenous) variable for the measure of media attention is undoubtedly a balance of pragmatism and purpose. Since the other endogenous variables of this research project are national in scope – national public opinion and congressional committee action – my media variable should serve as a measure of national media agenda. But I am not interested in just any national media agenda. I am particularly interested in media that inform people on issues of public policy. In this investigation of the dynamics of attention amongst media the press and policymakers, the specific subject of interest is environmental policy. Consequently the media outlet or outlets that I choose as my measure should serve as a broad source of information on issues of national public policy in general and the environment in particular.

The New York Times was selected as the measure because above all others, it is the media outlet of record in the United States.¹⁵ While there are other newspapers that have a more expansive circulation (*USA Today*, *Wall Street Journal*), no other newspaper covers national public policy as thoroughly for a national general audience. Further, *The New York Times* is identified as the single most influential media outlet in the United States (Dearing and Rogers, 1996). No other media outlet is as influential with the general public, policy makers and other media outlets. As Winter and Eyal (1981) write in their longitudinal study of civil rights agenda setting, “[*The New York Times*] is the elite U.S. newspaper” (p.379). In other words, because *The New York Times* is considered the most influential media outlet, it serves as a proxy for other media as well. As Kioussis (2004) writes, “that elite media sources influence the agendas of nonelite media and consequently enhance the generalizability of using data from these sources.” Further, using *The New York Times* as a measure of national media attention for issues of national public policy has become common practice in media research (Kioussis, 2004; Ader, 1995; Olson, 1995; Winter and Eyal, 1981).

Although the network news is often used as a measure of the media agenda in agenda setting studies concerned with issues of public policy, it would do poorly in this case. Because I am interested in constructing an agenda that can be considered a textual

¹⁵ I intended to use coding data from the Policy Agendas Project. The PAP has conducted a systematic random sampling of The New York Times Index from 1946 – 1994, including the environment as one of 27 topic codes. However, perhaps owing to the sampling technique used or the infrequency of environmental coverage itself, the number of environmental stories was a comparatively rare event (from 1961 to 1994, 601/ 26,578 records were coded environmental). At any rate, pretests determined that this method of sampling for environmental stories resulted in codings that were suspect. Yearly and monthly story totals did not conform to expectations as established by previous research (Soroka, 2002) and overall news trends. News coverage was expected to increase around 1989. Time magazine substituted its usual person of the year with “planet of the year” in 1989. Descriptive statistics of the PAP dataset indicated that there was no apparent increase in coverage during that year. In fact, a comparison of yearly story totals in the PAP dataset showed that the coverage in 1989 was as concentrated as it was in 1979.

agenda, network news serves as a poor proxy. Even though there is little agreement over whether television news is a primarily visual experience (Gans, 1979; Jacobs, 1996) it would nevertheless be difficult to empirically separate text and moving images in television coverage. Further, there is emerging scholarly agreement that the news functions as a collective institution (Cook, 1998). In contradiction to the organizational thesis, evidence finds that news content and news processes are remarkably similar across different outlets (Hofstetter, 1978; Semetko et al., 1991; Just et al., 1996).

The New York Times offers an effective and practical way to quantify a textual media agenda that is considered influential. My research objectives are not so much to revisit questions of whether or not the media influence policy makers and the public – but the extent to which that influence comes from the mediated textual or pictorial agenda. *The New York Times* serves as the best test case from which to test this question. At this point, public opinion theory assumes that it is words that influence people (Zaller, 1992). My purpose here is to install photographs into that equation and test whether they, too, influence policy or public opinion. The most defensible way to go about testing this is to compare a visual agenda against a textual agenda that is considered to be the most influential – not anything less.

To capture a measure of attention or salience of the environment in print, I counted stories that appeared in *The New York Times* each month between 1969 and 1992. I was restricted to begin the analysis in 1969 because Lexis-Nexis begins archiving the publication in January of that year. The time period I expect to be more than sufficient for my purposes because it covers two periods in which the environmental issue rises and falls among the various agendas. The end date was chosen because it is the

end of a congress, a presidential term as well as the tail end of the latest surge in environmental salience. The monthly story counts were obtained through a detailed search of keyword terms in the Lexis-Nexis database. Using monthly story counts as a measure of media salience is consistent with earlier Vector Autoregressive time-series analyses of media agenda setting (Bartels, 1996; Soroka, 2002, for example). See Appendix I for a detailed description of the measure, search terms used and story identification strategy.

Image Agenda

To get a measure of photographic salience of the environment, I conducted a content analysis of *Time* magazine over the same period as the textual analysis (1969-1992). My primary concern for capturing a measure of the picture agenda was that it be analogous to the measure for the print agenda. The empirical definition of pictorial salience for the dissertation was therefore limited to the monthly count of all photographs that appeared in the magazine that were explicitly about the environment. All issues of the magazine from January 1969 to December 1992 were included in the content analysis. Archived print copies of the magazine were used for most of the analysis.¹⁶

Counting only pictures that are explicitly identified as being about the environment makes picture coding less interpretive (and therefore a more consistent measure), but it also raises questions about the exact concept that is being measured (Shively, 1974, p.47).¹⁷ If the definition and identification of an environmental photograph is predicated on the existence of a headline, caption or story, then some might contend that I'm really measuring text.

¹⁶ Paper archived copies of the magazine were available in the LSU Library stacks. Missing copies were reviewed in the Loyola Library in New Orleans and the East Baton Rouge Parish Public Library.

¹⁷ See Appendix E for a detailed discussion and definition of the editorial photograph measure.

My response to this concern is twofold: first, variation in the way press covers environmental issues and events allows text and photographic agendas to be in fact quite unique; second, coding photographs on the basis of their explicit visual meaning is difficult if not empirically impossible.

My decision to code photographs in part on the basis of context provided by headlines, captions is based on a pre-screening. Even the most cursory examination of magazine coverage shows that the relationship between the amount of print in press coverage devoted to a specific topic (textual agenda) and the amount of pictorial attention (pictorial agenda) is hardly a one-to-one relationship. Photographic and textual agendas are quite distinct. *Time* magazine included long stories on the adverse health and environmental impacts of pesticides with few or no pictures. They ran extensive photo essays on air pollution in major metropolitan areas with comparatively few words. Even though they are not from the same publication, an empirical measure of the association of the textual and photographic agendas is illustrative of this incongruity.

In addition to the above realization, I also found that coding images on content alone – without the perspective provided by headlines and captions made inference quite tricky. In fact, categorizing a photograph as being “environmental,” without the contextualizing power of surrounding text creates serious validity concerns in a longitudinal study like this. Consistent with some visual communication scholarship, I found that the meaning of images – the concepts and ideas that the pictures appeared to signify actually changed over the time period of this study.

As is understood generally by semioticians in general (Peirce, 1991; Eco, 1976) and as argued by Messaris (1997) in specific, the semantic and syntactical structure of

photographs do not allow for an explicit and relatively fixed definition of what a particular photograph or even type of photograph means. Thus it became difficult to define (without the association of words) what photographs connoted environmental concerns, concepts or issues. It became clear, moreover, that whether or not an image was going to be viewed as being environmental had as much to do with the time of publication as it did with the content of the photo itself. An image that appears in a newsmagazine in 1964 might have different connotations than it does in 1989 – even if the picture is of the exact same object.

Photographs are understood as meaning something because they replicate the object that they represent.¹⁸ Meaning, however, is also conveyed through what is logically or otherwise implied by the photograph.¹⁹ While the actual physical reference, or iconicity, of a photograph does not change much, the indexical referent – the concept or idea that is signified by the index– does tend to change across cultures or time.

A specific example might make my point more clear. Early in the content analysis, I came across photographs of blast furnaces belching smoke into the air above Granite City. It was clear to me, as a reader in 2004, that one of the main significations of the photo was pollution. That interpretation of the picture, however, would have been aberrant – or at least rare – at the time of publication (1964). The picture was part of a series on the economic diversity of smaller steel companies and, at least as far as one can infer the motives of the editors, was merely included as an illustration of industrial production.

¹⁸ In semiotic terminology, this is referred to as iconicity.

¹⁹ This is referred to as indexicality in semiotic terminology.

While scholars such as DeLuca (1999) maintain that visual meanings can be rearticulated by social movements and understood by various publics in different (and subversive) ways, these interpretations are not central to the purposes of this dissertation.²⁰ Because I am looking at the connection between general public salience and the publication of environmental photographs, my definition of an “environmental” photograph should be one whose meaning is *generally* understood as signifying an environmental issue or event.²¹

Measuring the Pictorial Agenda: Photographs in *Time* Magazine

I have selected photographs that appear in *Time* magazine as the measure of photographic salience for several reasons. First, newsmagazines present the most practical means by which to conduct a comprehensive content analysis. A daily publication, especially *The New York Times* would have been more consonant with the text measure; however, a comprehensive content analysis of 23 years of daily photographic coverage is impractical. Second, using a major newsmagazine is an accepted measure of the photographic agenda in broad array of mass communication

²⁰ DeLuca’s argument is an interesting and empirical question. It is not without implication for this dissertation. DeLuca proposes that interest groups can use image events to reframe the meaning of the pictures that people see. In semiotic terms, he is concerned with the shift of meaning to the signifier and the political implications. To return to the smokestack example, DeLuca considers how the signification of the photograph of the furnace shifts from industrial production to air pollution. My concern here is simply with the relative frequency of photographs (whose meaning is broadly understood and therefore relatively static) and their connection to public concern and policy action.

²¹ It is not only the semantic properties of the photograph that make coding difficult. The syntax of photographs, or more properly the lack of syntax, makes categorization based on what it would mean to people a difficult task. A photograph, Messaris (1997) argues, is syntactically indeterminate, which means that it does not carry explicit connections. Messaris writes that once we go beyond spatiotemporal interpretations “the meaning of visual syntax becomes fluid, indeterminate, and more subject to the viewer’s interpretational predispositions than is the case with a communicational mode such as verbal language, which possesses an elaborate set of explicit indicators of analogy, causality and other kinds of connections between two or more concepts”(p. xii).

literature (Gans, 1979; Moriarty and Garramone 1986; Moriarty and Popovich, 1991; Sherer, 1989; Tsang, 1984).

Life magazine would have been the obvious choice for constructing a measure of photographic salience. It was a general interest magazine that reached a giant swath of the American public. By 1970, *Life* had a readership approaching 50 million (Campbell et al., 2004, p. 312). More to the point, *Life* was fundamentally a visual magazine that aimed to tell the week's news through photographs.²² In the words of the magazine's publishers, "*Life* magazine has captured the most significant moments of the 20th century with the power of the lens."²³ *Life*, however, proved to be unsuitable for the analysis because, between 1969 and 1992, the magazine changed from a weekly magazine to a monthly magazine and in between 1972 and 1978 it stopped publication entirely. *Time* magazine was chosen in the end over *Newsweek* or *U.S. News and World Report* because it had the largest circulation of all three major newsmagazines during the period of analysis.²⁴

Measuring Policy Action

I have chosen to use a monthly count of committee hearings drawn from the Congressional Information Service as the singular measure of policy agenda. The choice is defensible on several grounds. First, it is the measure on which Soroka builds his

²² Circulation statistics from Journalism.Org, available online at:

http://www.stateofthenewsmedia.org/narrative_magazines_audience.asp?cat=3&media=7

²³ Quotation obtained from Life's online literature: (Available at: <http://www.life.com/Life/lifeclassic.html>)

²⁴ In conducting this time-series analysis of the interrelationship of policy action, public concern, print salience and photographic salience, I am not trying to make a specific connection between *Time* magazine in particular (and the other endogenous variables), but rather I am using photographs in *Time* as a proxy for the images that people were exposed to over that period of time. I am using *Time*, in other words, as a generic measure of image salience.

methodology (2002, p.59).²⁵ Second, committee meetings are a widely used measure of United States policy agenda setting work (Baumgartner and Jones, 1993, 2002; Bartels, 1996; Sharp, 1994; Hardin, 2002; and Feeley, 2002). Scholars use committee meetings as a measure of policy action because they are found at the center of the development of policy. Whether one subscribes to the notions of issue networks, subgovernments or iron triangles, committee meetings represent the institutional foci in the policy process. I will discuss this point in depth in the next section. Specific to this particular policy issue, Flemming, Wood and Bohte (1997) find Congress to be the major agenda setter on environmental policy. Finally, thanks to the Policy Agendas Project, overseen by Baumgartner and Jones, committee hearings are the most accessible, consistent and reliable measure of policy attention available.

In addition to the endogenous policy action variable I have also included three structural policy variables, which are included in the estimation of the policy equation. These variables are not meant to be used as a measure of government attention or agenda; however, as Soroka (2002) outlines, they are included because they may have an effect on policymaker attention and should therefore be included as control variables. These exogenous structural variables are outlined below.

Election is a dummy variable – coded 1 for a month in which an election is called and zero otherwise. The election variable is modeled in the SUR equation as a concurrent exogenous variable and a one month lead.

²⁵ Soroka also includes a variety of exogenous predictors of the dynamics of policy attention. As he concedes this is due in part to the difficulty of measuring policy action within Canada and in part because there are fewer agreed-upon empirical measures of policy attention in the Canadian parliamentary system (2004, 55). Soroka includes exogenous measures for committee reports, bill discussions and a throne speech dummy variable as right-hand side variables as part of his policy equation. I do not include these measures because they are specific to the Canadian parliamentary system and/or they are specific to the equation's dependent variable.

Fiscal is a fiscal counter variable (1-12) that mimics the federal fiscal year, which begins in October and ends in September for the period 1977 to 1992. During these years, the fiscal counter variable counts upwards from October to September (of the next calendar year). Previous to 1977 the federal fiscal cycle ran July to June.²⁶ The fiscal counter variable takes this into account. For the three intervening months, known as the transition quarter, between the end of the old cycle (July 1976) and the beginning of the new cycle (October 1976) was considered a separate accounting period, thus the counter was left at the value of one.

Budget is a yearly measure of Budget Authority given to environmentally related functions and subfunctions of the Budget of the U.S. Government. Data, obtained from the Policy Agendas Project, have been organized and classified into functional categories of the United States Government.

The measure represents the yearly changes in the amount of appropriations for environmentally-related functions and subfunctions of the government and are reported in constant fiscal year 2001 dollars (in millions).²⁷ The functions and subfunctions included in the analysis are:

- 272 – Energy Conservation
- 300 – Natural Resources and Environment
- 301 – Water Resources
- 302 – Conservation and Land Management
- 303 – Recreational Resources

²⁶ The federal fiscal cycle was changed by the Congressional Budget Act of 1974 (Section 501 of P.L. 93-344, currently codified at 31 U.S.C. 1102)]

²⁷ The data used for the Budget measure were originally collected by Frank R. Baumgartner and Bryan D. Jones, with the support of National Science Foundation grant number SBR 9320922, and were distributed through the Center for American Politics and Public Policy at the University of Washington and/or the Department of Political Science at Penn State University. Neither NSF nor the original collectors of the data bear any responsibility for the analysis reported here. For a full description and details of the creation of the dataset see the Policy Agendas Project website, available online at: <http://www.policyagendas.org/datasets/index.html>

304 – Pollution Control and Abatement
306 – Other Natural Resources

The variable *budget* is the yearly difference in the percentage of total budget authority that is directed towards environmental purposes. The variable is created as follows:

$$\text{Budget} = \frac{\sum EBA}{\sum TBA} \text{ year } t - \frac{\sum EBA}{\sum TBA} \text{ year } t+1$$

where EBA represents the annual environmental budget authority and TBA represents the total budget authority.

Using a Single Policy Measure: Committee Meetings

Agenda setting work concerned with the dynamics of policy attention tends to measure the policy agenda as government spending (Baumgartner and Jones, 1993; Feeley, 2002) legislative committee meetings or congressional hearings (Baumgartner and Jones, 1993; Bartels, 1996; Hunt, 2002), press releases, statements or speeches (Gonzenbach, 1996).

It is common practice in even the best of this empirical work to use a single variable as the measure of issue importance (Soroka, 2002a, 2002b, 2003; Kellstedt, 2000; Birkland, 1997).

A single measure of government attention has obvious disadvantages in capturing the full extent of issue importance across the various branches of government. It is difficult to argue that Presidential attention as measured by mentions in the *Public Papers of the Presidents of the United States* is a proxy for identical attention in Congress, the

Courts or indeed the bureaucracy. Nevertheless single measures are widely used because selection and reduction are necessary in the development and progression of normal science. No one paper, book or dissertation can be both universal and focused at the same time. The best an agenda-setting researcher can do, if he or she is using a single measure of policy action is to select the most appropriate measure for the issue or issues under examination.

For a long-term, time-series analysis of the attention paid to environmental issues, committee hearings are the best available measure of government attention. They are both easily accessible—thanks to the Policy Agendas Project – they are accurate over time (Baumgartner and Jones, 1993) and they are considered to be the hub of the policy making process. Soroka argues that congressional hearings “are, in many cases, the single most important forum for policy discussion” (2002, p.59). Focusing on committee actions does not necessarily mean that other parts of policy subsystems are being overlooked. As Hunt (2002) argues, actors within a policy subsystem employ congressional hearings as the place to redefine and direct attention to an issue. Political entrepreneurs use hearings “to buttress their existing policy jurisdiction as well as to make claims on other policy areas where they want to get in on the action” (p.79).

Although the operationalization differs slightly, there is broad consensus in previous research that committee meetings are a dependable and valid measure of congressional attention (Baumgartner and Jones, 1993; Bartels, 1996; Edwards, Barrett and Peake, 1997; Edwards and Wood, 1999). Edwards and Woods write that “hearings are the most typical source of media stories and the most likely focus of institutional

response to media coverage of issues. Hearings are an excellent indicator of what Congress is taking seriously” (p. 331).

I measured congressional attention to environmental concerns as the number of committee meetings being called each month.²⁸ This is consistent with some agenda setting research (Baumgartner and Jones, 1993; Hardin, 2002; Feeley, 2002; Adler, 2002). Other research (Bartels, 1996; Edwards and Wood, 1999) operationalize policy attention as the number of days of hearings on a particular subject during a specified period of time. Both measures are valid. Measuring by committee meeting as opposed to days of meetings has the added value of being a more stringent measure of policy action.

Presumably the act of calling a committee meeting requires more congressional impetus and is therefore a more robust measure of congressional action than is the decision to extend committee meetings from two to three days. Measuring the time devoted to committee action has the added advantage of being a more sensitive measure to the actions of committees deliberating environmental issues. But added time in

²⁸ The data used to create the environmental committee meeting variable were originally collected by Frank R. Baumgartner and Bryan D. Jones, with the support of National Science Foundation grant number SBR 9320922, and were distributed through the Center for American Politics and Public Policy at the University of Washington and/or the Department of Political Science at Penn State University. Neither NSF nor the original collectors of the data bear any responsibility for the analysis reported here. In determining whether a committee meeting was devoted to environmental topics, I relied upon the Policy Agendas Project data and categorization scheme. Hence, all committee meetings that fell under the major topic code of seven in the Policy Agendas Project congressional hearings data sets (combined House, Senate and joint committees) between the years of 1969 and 1992 were included in this analysis. For a detailed description of the data and a discussion of the coding scheme go to: <http://www.policyagendas.org/codebooks/topicindex.html>. I originally attempted to cast a wider net and include committee meetings that fell under other major topic codes but were in some way related to environmental issues. This initial selection was based on additional topic codes that were related to environmental policy issues (e.g. topic code 2100: Public Lands and Water Management, General) and a keyword search of the topic category. In many cases, however, it became difficult to determine the exact purpose of the meeting. Because the original coding scheme appeared to have more integrity and validity – that is the listed meetings were evidently more specifically about environmental issues than the more extensive list – I chose to restrict environmental committee meetings to the less inflated list that had been coded specifically environmental (major topic code 7) by the Policy Agendas Project.

committee may in fact be more reflective of institutional conflict (Kernell, 1991; Edwards, Barrett and Peake, 1997) than it is of congressional action.

Obviously, it would be preferable and provide a truer and more broadly defensible measure of governmental attention to the environment if I were to include a fourth endogenous variable of attention from the executive branch and agencies such as the EPA, or bureaus like the Fish and Wildlife Service, Geological Survey and Park Service within the Department of the Interior. Such data, however, are not available on a monthly basis, or are extremely time-consuming to gather. Moreover, the exclusion – especially in the context of a long-term time-series analysis, is not as detrimental as it appears on first glance. Congressional oversight of these bureaucratic departments and agencies allows for some feedback to be captured. As a result of the congressional power of the “purse strings,” long-term attention of the executive agencies is in part directed by the attention and priorities of Congress. Congressional attention, measured in terms of volume of committee meetings, in other words, should at least be consistent with broad support given to agencies within the executive branch of government over a long period of time.

Inclusion of Policy Variable in Each Equation

In modeling the dynamics of press, policy and public attention to a variety of issues, Soroka decides not to include the endogenous policy variable within the Public Opinion Model. Soroka argues that the public cannot be aware of policy action directly, that the news media represents the singular conduit through which the public is informed about policy choices and attention. I have chosen otherwise. My decision to do so is based on both theoretical reasons and empirical justification.

While it is reasonable to expect people to become informed about governmental policy attention through the news media, it is no longer reasonable to assume that this is the *only* means by which the public will become informed about governmental policy action. This is especially true when the only measure of news media is conventional print or broadcast media. As Hamilton and Jenner argue (2003, 2004) conventional models of news dissemination are in need of re-evaluation.

Empirical observations support this argument. A block exogeneity test, which is a widely used time-series econometric test to determine whether to include an additional variable into a model (Enders, 2004, p. 284), indicates that including the policy variable within the public opinion equation improves the predictive power of the model ($\chi^2=13.4580$, 6 df) Since the calculated test statistic has a larger value than the χ^2 statistic at .05 level of significance ($p=0.0363$) we can reject the null hypothesis that the restricted equation is equal to the unrestricted equation. Standard single-equation measures of goodness of fit corroborate the likelihood ratio test. The public opinion equation that includes the policy variable on the right-hand side of the equation displays better goodness of fit statistics ($R^2 = .8718$, $RMSE = 0.5977$) than the restricted model ($R^2 = .8655$, $RMSE = 0.612176$).²⁹

Measuring the Public Agenda

Generally speaking, when we refer to the public agenda, we are talking about the issues or problems that the public is concerned with at any given time. Soroka defines the general meaning of salience as “the relative (and changing) significance of an issue to a given actor (i.e., the public, the media)” (2002b, p.3). In this particular case, I am interested in measuring the salience of environmental issues to the American public.

²⁹ Six lags were used in the testing of the two models.

Because I am interested in salience as opposed to their policy preferences, I have decided to base my measure on the Most Important Problem question asked most regularly by the Gallup organization.³⁰ Although concerns with the measure are well known, empirical modeling of the public's attention to individual policy issues has long depended on this measure (Baumgartner and Jones, 2003; Soroka, 2002; Funkhouser, 1973; Iyengar and Simon, 1993; MacKuen and Coombs, 1981; Neuman, 1990).

Disadvantages of the question as a measure of issue salience for the public have been widely noted. Mackuen and Coombs (1981) suggest that the question elicits a casual response. Eaton (1989) and Wlezien (2001) comment that the use of the word "most" creates an even more volatile measure of opinion. Open ended questions also suffer from varied tabulation and subsequent coding (DeGeorge, 1981; Soroka, 2001). Jones and Baumgartner (2003) also point out that variability in wording and respondents and tabulation of the open-ended data make the measure problematic as a time-based measure of policy attention (see also Soroka, 2001). Despite these problems, however, Jones and Baumgartner (2003) conclude that the "potential gains far outweigh the pitfalls"(p.2). While there is a considerable amount of agreement that there are weaknesses, there is also broad agreement that the most important problem measure remains the single best time-based measure of public issue salience that we have.

With the concerns in mind, I proceed to discuss how I construct a measure of public concern for environmental problems. The basic question that forms the backbone of the measure is the Gallup organizations open-ended Most Important Problem question.

³⁰ As Wlezien (2003) points out, salience and importance are not identical concepts. Strictly speaking, he is correct. However, in my discussion of public opinion, I have been using the term loosely as Soroka and Kollman are using the term (1997). Kollman defines salience as "the relative importance people attach to policy issues" (p.9)

Gallup asks the question more frequently and over a longer period of time than any other polling group. The wording of the question is “what is the most important problem facing the nation today?”

In order to create a measure of environmental concern from the Gallup question, I calculated the raw total percentage of respondents who were coded as listing the environment or some environmental issue as the most important problem. In most cases the environment was listed as a single catch-all category. In a few circumstances there were separate categories listed (including acid rain and pollution). This raw number was entered as the monthly level of concern for the environment.

At this point, there were two primary concerns with the data. First, there were a large number of missing values. Gallup asked the question regularly, but only at a slightly higher rate than 4 times per year. Second, the tabulation of the data was evidently unstandardized with respect to the way in which the percentage of people considered a particular issue the most important problem. In some cases, the tabulated percentages were reported for categories with a total of one percent or higher. In other cases the cut off point was two or three percent. For an issue like the environment, where the percentage of people who think the environment is the most pressing issue is typically low, the latter conditions presented a problem in reliability. Even though the environment wasn't listed as a concern in the shortened tabulations, one or two-percent of the population could have still considered the environment the number one problem.

I addressed both problems through data imputation. Because other survey organizations asked similar questions to Gallup's most important problem question and the questions were asked them regularly over time, I was able to create separate measures

that I could then combine to form an index of responses to these various open-ended most important problem questions.³¹

In addition to Gallup's most important problem question, major news organizations underwrote regular surveys including a most important problem question with similar wording.³² Cambridge Reports also reported regular responses to a comparable question which asked respondents what the two most important problems were.³³ The news organizations' measures were directly comparable to the Gallup measures; the Cambridge Reports' measures, because they reported the two most important problems, reported higher numbers and more variation.

Several methods were considered including standardizing all polling numbers. A preliminary analysis of the data determined that the best method was to use existing data to estimate a predicted Gallup score from the Cambridge score.³⁴ These predicted scores were combined with the other standard most-important-problem data to combine a single index of monthly most important problem responses over time. In the instances where the data coincided in a single month, the average of the responses was calculated. Missing

³¹ Every survey used in this analysis was comparable in terms of the sampled population. In every case sample populations were greater than 1000 and drawn from the national adult population. All surveys that included oversamples were excluded. Survey responses were obtained electronically from the Roper Center for Public Opinion Research available on Lexis-Nexis.

³² The surveys were underwritten by ABC News, *The Washington Post*, CBS News and *The New York Times*. In all but a few surveys, ABC News and The Washington Post sponsored the survey together, as did CBS News and *The New York Times*. The questions in both cases were asked similarly to the Gallup MIP question. ABC News/ Washington post asked the following question: "In your opinion, what do you think is the most important problem facing this country today?" CBS News and The New York Times asked: "What do you think is the most important problem facing this country today?"

³³ Cambridge Reports asked the following question: "What do you think are the two most important problems facing the United States today?"

³⁴ Initially, I regressed Gallup scores on Cambridge scores ($n=35$; $R^2 = .689$, $t=8.57$) but the scatterplots revealed a non-linear relationship between the two variables. I thus transformed Cambridge by squaring it. Scatterplots suggested the model was a better fit. Goodness-of-fit and test statistics confirmed it ($R^2 = .800$, $t=11.52$). From this simple bivariate model, I predicted the value of Gallup based on the transformed Cambridge variable.

data were linearly interpolated.³⁵ This is consistent with earlier research on the public agenda (Soroka, 2002).

Including Measures for Real World Factors

The public, policy and media environmental agendas do not occur in a vacuum. Although the purpose here is to determine how each of these actors responds to each other, the presumption is that each of their agendas is also responding to real world conditions. In order to capture this effect within my model of agenda setting effects, I have also included the following real world indicators: 1) yearly carbon dioxide emissions in the United States;³⁶ 2) yearly emissions of criteria air pollutants in the United States (CO, NO_x, VOC, SO₂, PM₁₀);³⁷ 3) annual harvested roundwood in the United States;³⁸ 4) number of species listed annually as endangered by the U.S. Fish and Wildlife Service;³⁹ 5) composite leading economic indicators for the United States.⁴⁰

In each case the purpose was to gather objective, time-based indicators of environmental conditions. Differenced series (changes in yearly levels) are used to capture the dynamic that the policy action, public attention and media attention will respond to. Soroka writes that differenced levels are a better measure because “reactions by the public, media and policymakers will most often be to relative changes in the

³⁵ Out of 276 cases there were 107 missing.

³⁶ Source: Department of Energy: Emissions of Greenhouse Gases in the United States 2002. CHART: Total Energy-Related Carbon Dioxide Emissions by End-Use Sector, and the Electric Power Sector, by Fuel Type, 1949-2002, (Appendix B). Available online: <http://www.eia.doe.gov/oiaf/1605/ggrpt/>.

³⁷ Source: EPA, National Air Pollutant Trends, 1900-1998.

³⁸ Source: Food and Agriculture Organization of the United Nations, Production of Forest Products by Major Commodity Group and Selected Countries, 1962-1997. Available online: <http://mmsd1.mms.nrcan.gc.ca/forest/historique/section8/VIII-11B-1997-E.htm>) According to the Energy Information Administration, “Roundwood consists of logs, bolts, and other commercially viable sections of growing stock or salvable dead trees, generally more than five inches in diameter at breast height”

³⁹ Source: USFWS Species Listings from 1973 to 2003. Available online: (<http://endangered.fws.gov/>).

⁴⁰ Source: Organization for Economic Co-operation and Development, Composite Leading Indicators, Trend Restored Composite Leading Indicators Worksheet. Available online: http://www.oecd.org/document/37/0,2340,en_2825_497112_32063461_1_1_1_1,00.html)

various real world indicators rather than to their actual values” (2002, p.78). Economic conditions⁴¹ were also included as part of environmental real world conditions because of the common assumption and theoretical contention that economic conditions are tied to environmental protection – the so called tradeoff between economic growth and environmental stability.⁴²

Dynamic Modeling of Agendas

Modeling of the agenda-setting dynamics of environmental issues amongst the public, policy makers and the media is estimated in this dissertation using the so-called near-Vector Autoregression known as Seemingly Unrelated Regression (SUR) first presented by Zellner (1962). As both Enders (2004) and Hamilton (1994) point out, VAR has become a popular method for the analysis of time series dynamics in economic systems following Sims’ (1980) paper on the over identification of models in Macroeconomics. It has recently been adapted for use in agenda setting research (Bartels, 1996; Edwards and Wood, 1999; Soroka, 2002).⁴³

⁴¹ The economic leading indicators were differenced on a monthly basis.

⁴² For popular and theoretical discussions of the tradeoff see: United Steel Workers of America Task Force. (1995) “Our Children’s World. Steelworkers and the Environment,” Report by the USWA Task Force, presented and adopted August 30 at the 25th Constitutional Convention in Toronto, Ontario. Available online: <http://www.uswa.org/uswa/program/content/1592.php>; Yabuta, M. (2002) “Optimal Environmental Policy And The Dynamic Property In Ldcs” in *Discrete Dynamics in Nature and Society*. 7 (2): pp. 71-78. Available online: <http://www.hindawi.co.uk/open-access/ddns/volume-7/S1026022602000109.pdf>; Kageson, P. (1998) *Growth Versus the Environment: Is there a Trade-off?* Kluwer Academic Publishers, Dordrecht; Rae, Bob (2004) “The Government and Environmental Protection” Seminar in the Environment Canada Policy Research Seminar Series (May 25). Environment Canada. Available online: http://www.ec.gc.ca/seminar/Bob_Rae_e.html; House Report On Clean Water Act Amendments Of 1995: 104-112 Clean Water Amendments Of 1995 Report of The Committee On Transportation And Infrastructure On H.R. 961 Together With Additional, Supplemental, And Dissenting Views. Available online: <http://thomas.loc.gov/cgi-bin/cpquery/t?&report=hr112&dbname=cp104&>.

⁴³ Information on general econometric and statistical methods came from econometrics texts like Kennedy (1998) and Gujarati (1995). Modeling information specific to time series estimation and the appropriate techniques for analysis was taken primarily from Enders (2004) and Hamilton (1994). My aim here is to provide only a basic clarification of the analysis of VAR and SUR results. A more thorough discussion of the analysis techniques can be found in the above texts.

VAR is in essence a modeling technique used for the analysis of time series data where all key variables are assumed to be symmetrical. This means that in a bivariate system, the time path of y_t is influenced by current and past observations of x_t and itself and x_t is influenced by current and past observations of y_t and x_t (Enders, 2004). VAR modeling was developed as an alternative to structural equation models where some variables were treated as endogenous and others as exogenous. Sims (1980) argues that a priori restrictions in the modeling of dynamic systems are inappropriate where true simultaneity is presumed to exist. A simple two-equation model or bivariate system would look like this:

$$Y_t = \alpha + \sum \beta_i Y_{t-i} + \sum \gamma_i X_{t-i} + u_{1t} \quad (3.1)$$

$$X_t = \alpha + \sum \theta_i Y_{t-i} + \sum \lambda_i X_{t-i} + u_{2t} \quad (3.2)$$

where X and Y are endogenous variables; β , θ , λ , and γ are parameters to be estimated; μ is the stochastic or impulse term and i represents the number of lags to be included in the model.

While this technique has been criticized for being atheoretic because it eschews prior information and theory (Gujarati, 1995, 749), defenders of VAR methodology contend that the method is a more parsimonious solution to the problem and that the empirical results speak for themselves. As Gujarati writes, “the forecasts obtained by this method are in many cases better than those obtained from more complex simultaneous-equation models” (p.749).

VAR methodology assumes that each of the right hand side equations contain the same number of lagged endogenous variables and therefore uses OLS to produce

estimates.⁴⁴ There are situations, however, where this assumption is unrealistic or theoretically or empirically unsound. In this case, SUR is the more appropriate technique to estimate the system. SUR uses GLS to estimate each equation in the system together (Gujarati, 1995; Enders, 2004). The use of SUR estimation is not widespread in political science but it has been applied in a variety of studies (Chappell and Suzuki, 1993; Chubb, 1985; Ferejohn and Calvert, 1984; Simon et al., 1991, Soroka, 2002). Further, Soroka (2002) provides a good background on the use of SUR in political science.⁴⁵ The dynamics of agenda setting are such that each of the key endogenous variables does not have the same regressors. Recent agenda setting work, specifically that done by Soroka (2002, 75-6) describes a system where key variables of interest (initially: media, public and policy) contain unique independent endogenous and exogenous variables.

In order to examine the research questions outlined above I will construct three different systems of equations. The first system (a three-equation) SUR model will include endogenous variables for policy action, public opinion and print media. The purpose here is to lay the groundwork for subsequent analyses and to determine the dynamics as sketched out in Figure 3.1. Next, I add the editorial *picture agenda* variable to create a four-equation model, in which I test the null hypothesis of no causal relationship between the editorial photograph agenda and the agendas of the rest of the system (public opinion, policy action and print media). The three- and four-equation

⁴⁴ Because the assumption is made that there is no serial autocorrelation, and each regression in the system contains identical predetermined variables, each equation can be estimated separately using OLS and the estimates provided are identical to GLS estimates provided by estimating the equations together (Enders, 2004, 271; Gujarati, 1995, 747).

⁴⁵ I used STATA version SE 8 to do all empirical modeling in this dissertation – either with the commands “sureg” or “var.” In cases where constraints are included in the model, the “var” command in STATA uses Seemingly Unrelated Regression to obtain estimates. Log files for the models used in this dissertation are included in Appendix D.

agenda setting models are presented in Appendix A. A more detailed outline of my analysis strategy is outlined in the next chapter.

Experiment

In order to test whether image frames affect the way people perceive issues I will conduct an experiment that tests whether pictures or text can have an influence opinions people have on a particular environmental issue. Further, this experiment aims to study the extent to which opinion influence, if it exists, is based on belief change – as is held by the prevailing model of communication and persuasion effects, or if it is based on belief importance, as is expected by both priming and framing research. Subjects were volunteers from POLI 2051. Extra credit was offered. Obviously, sampling from this group has implications for generalizability; however, given the time and financial restrictions of the dissertation, these subjects are acceptable. Furthermore, the use of university students is an accepted practice in political science experimentation (Druckman, 2001; Nelson and Oxley, 1999; Nelson, Oxley and Clawson, 1997; Nelson and Kinder, 1996; Nelson, Clawson, Oxley, 1997).

The basic design for the experiment will be an after-only between-participants design. Participants will be randomly assigned to one of three main manipulations and a control group that will not see an advertisement. In addition to the three main conditions, two factorial conditions will be added: advertisement **sponsorship** and **advertisement variation**

Design and Procedure

Participants were first instructed to read a short explanation and series of instructions. Participants were told that the purpose of the experiment was to determine

how well news articles inform their audience about public affairs issues. They were also told that their responses would be anonymous. Prior to being exposed to the experimental condition, participants were asked to provide a variety of demographic information and a series of general political attitude questions. (See Appendix B for a replication of the entire questionnaire). Following these questions, subjects read a news article that appeared to be reproduced from the online version of the Albany *Times Union* on the EPA's upcoming decision to force General Electric to pay for dredging of the Upper Hudson River. The purpose of this article was to provide participants with necessary background information about the issue. Information is factual and pegged to the decision itself, without quotes from General Electric or Environmental groups. No photographs or illustrations were used. Careful attention was paid to not frame the article in a way that would influence the experiment. All participants including the control group read the same article.

After reading the article, participants were instructed to proceed to the next page. To add credibility to the cover story, all participants were asked to answer a few factual questions about the content of the article. When they finished that page, respondents who were not in the control group were exposed to the experimental manipulation. Control group members went on directly to the subsequent questions. Following the experimental manipulation all participants responded to a factual question on the advertisement they have just viewed, and a measure of interest. Following this, participants will be asked to reply to a variety of questions used to measure the dependent variables.⁴⁶

⁴⁶ A more complete description of the procedure is included in Chapter 5. A copy of the questionnaire and experimental conditions is included in Appendix B.

Independent Variables

The main manipulation itself is the exposure to **advertisement type** – one of three different versions of advertisements actually produced by General Electric. Participants were exposed to: an advertisement that contained *both text and photograph*; an advertisement that contained *text only*; and an advertisement that contained a *photograph only*. Participants were randomly selected for each of the experimental conditions and the control group. By exposing participants to advertisements with *text only*, *image only* and *image and text*, I aim to control the framing effects of images, text and their combination. This experimental control should allow me to determine whether preferences (and the considerations upon which preferences are based) are influenced by images, text or some combination.

In addition to the principal dependent variable, two additional variations of this main experimental condition were added: **advertisement variation** and **sponsorship**, creating a 3x 2 x 2 factorial design.

First, to improve the external validity of the experiment, I modified the **advertisement type** by **advertisement variation** to test for interactive and independent effects on the dependent variables. Advertisements conducted by General Electric in their campaign to influence the public and the EPA varied, portraying dredging variously as a threat to the current environmental conditions. Among their diverse approaches, two advertisements framed the issue in a *nostalgic light* and an *explicit threat*. In the nostalgic frame, a child is pictured diving into water purportedly in the Upper Hudson River, copy which runs above the image reads, “Will this be the last dive for ten years?” Below the picture, in a smaller font, the text continues: “Dredging could disrupt life on

the Hudson for ten to twenty years. If you don't want this to happen, make your voice heard. Visit www.husonvoice.com. A message from GE" (See Appendix C for a copy of the original advertisements and a replication of two advertisements included in this experiment).

In the explicit threat frame, a clamshell dredger is pictured oozing sludge and liquid, as it is pulled from the water's surface. The copy suggests that the Hudson River is already clean and safe, and ends with the phrase "Why Dredge Now?" (A copy of the reconstructed advertisement appears in Appendix A).

I have constructed two advertisements that replicate these advertisements as accurately as possible. Obviously, the exact pictures are not available, but every effort was made to match the text size, font, placement, direction and spacing of the original advertisement. Each of the two **advertisement variations**, *nostalgic light* and *explicit threat* will be applied to each of the three possible **advertisement type** categories – text, picture and both text and picture.

Finally, I included the variable **sponsorship** to account for constraint of framing effects. As Druckman (2001) shows, framing effects are constrained by the credibility of the frame's source. One would expect that General Electric would face some credibility challenges in its attempt to frame its objectives as the environmentally positive thing to do. As such, **sponsorship** will have two categories – *General Electric* and *Sierra Club*. Each of the two **advertisement type** conditions that contain text – *text* and *both* – were varied by the two sponsorship conditions. For advertisements that have both picture and text, General Electric sponsored half and the other half were sponsored by the Sierra Club. The text only advertisements will be handled the same.

Aside from the control group, the experimental design is sketched in Figure 3.2. The image only condition will not be varied according to the sponsorship variable, because it includes no text at all.

Dependent Variables

The key dependent variable will be subjects' stated **opinion** (or preference). The variable is measured by two questions asked on a seven-point Likert scale, ranging from strong support/approval of dredging (+3) to strong opposition/rejection of dredging (-3).

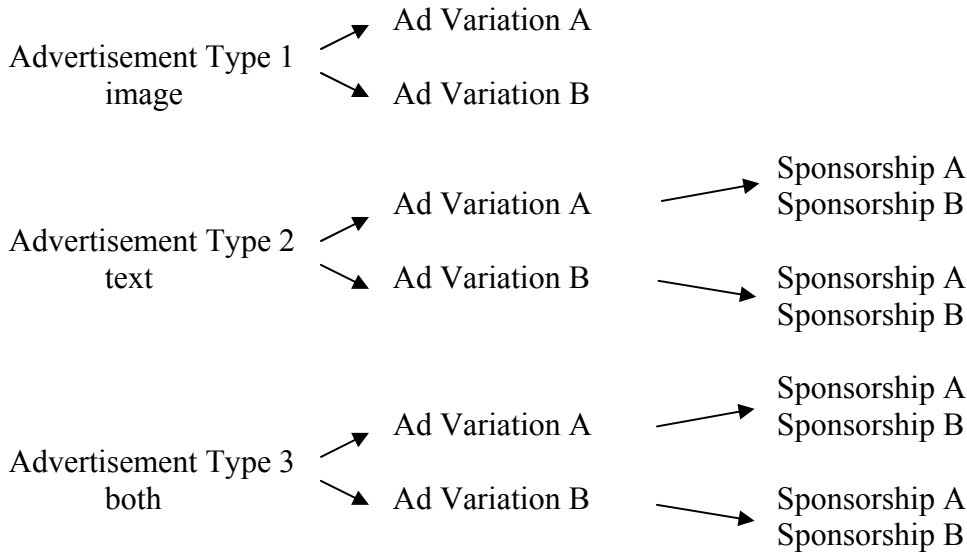


Figure 3.2: Factorial Design of Experiment

This is consistent with earlier research on framing effects (Nelson and Kinder, 1996; Nelson, Oxley and Clawson, 1997; Nelson, Clawson, Oxley, 1997; Nelson and Oxley, 1999; Druckman, 2001).

A diverse body of empirical and theoretical literature contends that framing is the mechanism by which people are manipulated to think about political and economic problems (Chong, 1996; Entman, 1993; Jacobs and Shapiro, 2000; Kinder and Herzog,

1993; Nelson and Kinder, 1996; Nelson, Oxley and Clawson, 1997; Nelson, Clawson and Oxley, 1997; Nelson and Oxley, 1999; Tversky and Kahneman, 1981). Elites, because they have access to channels of mass communication (Gans, 1979; Tuchman, 1972) have the ability to construct public problems by the frames that they use. In fact, there are some who believe that elites face few obstacles in their capacity to manipulate public opinion (Jacobs and Shapiro, 2000).⁴⁷ Other empirical research has begun to explore the limits of framing effects (Druckman, 2001; Druckman, 2004).

Of critical importance in the study of framing effects are not only peoples' beliefs, but measures of what considerations people weigh when making their decisions about policy issues. As I have outlined above, framing theory argues that whereas persuasion is presumed to operate by changing beliefs, framing is understood to affect opinion by changing the relative importance of beliefs. I will therefore include a measure for the relative importance of those ideas or **belief importance**. Following previous research (Nelson and Oxley, 1997; Druckman, 2001) belief importance will be measured by a question which asks participants to rate how important a series of ideas were for them in making up their mind or deciding their preference.

A third measure will examine the ideas about dredging and the environment that presumably impact opinion. I will construct a measure of **belief content** to determine whether or not the experimental manipulation changes beliefs or merely influences the relative priority of these considerations. This variable will be measured by a series of 7-point Likert-type questions that examine general beliefs about the impact of PCBs and the impending decision by the EPA. Questions will ask respondents to locate their beliefs

⁴⁷ See especially Druckman (2001) for an articulation and discussion of the belief that elites face few constraints in their ability to frame public issues.

on various impacts as being somewhere between extremely positive (+3) to extremely negative (-3). Framing theory suggests that alternative frames will not change belief content. These belief importance items appear in Appendix B.

Empirical Contributions of the Research

This experiment sits amongst research that examines the individual-level effects of framing. It contributes to the body of empirical research on framing effects by testing the influence of a real-world public lobbying effort on opinions, beliefs and the priority of considerations that we use to make decisions on issues of public policy. This should at once enhance the external validity of framing effects research and provide a more rigorous test of the limits of framing effects. By using a public lobbying advertorial as my experimental condition, I will test whether framing effects are observable in communication whose explicit aim is to be influential. Previous experimental research has examined the framing effects of statements, newspaper articles or even pictures (Tversky and Kahneman, 1982; Nelson and Kinder, 1996; Nelson, Oxley and Clawson, 1997; Nelson, Clawson and Oxley, 1997; Nelson and Oxley, 1999; Druckman, 2001). Individual-level framing effects have not been tested where the experimental condition was an advertorial – where the patent purpose is to influence. Second, it will develop Druckman's (2001) test of sourcing constraints on framing effects by examining the relative capacity of competing interests to frame the decision to dredge the Hudson River.

More important to the investigation here, I contribute to framing effects research by developing the first comprehensive test of the framing effects of multi-modal communication. While there has been some study the effects of images, that research has either conflated text and images (Nelson, Clawson and Oxley, 1997; Nelson and Oxley,

1997) as the experimental condition or used only text (Druckman, 2001) or only images (Nelson and Kinder, 1996) as their experimental manipulation.

In addition, this analysis will contribute to the agenda setting research outlined in the first part of this chapter. The controlled environment of the experiment will permit the examination of modal effects of advertorial content, which we couldn't isolate in the agenda setting experiment. It will further allow us to go beyond salience effects and analyze preferences. Finally, the experiment will allow for the study of modal effects on two levels: the individual and the aggregate. The psychological findings of the experiment should complement and help clarify the aggregate-level results in the agenda setting study. By examining aggregate level effects and individual or psychological-level effects we may be able to make broader inferences about how interest groups use the media to influence policymakers and the public on issues of public policy.

Chapter 4 – Agenda Setting

My objective in this chapter is to provide a thorough response to my first research question and in a more general way present some conclusions on how well the signaling and framing models explain the dynamics of concern for the environment. First, using econometric techniques designed to detect causal precedence, I will try to explain to what extent the news media's photographic and text agenda influences the salience of environmental concerns in the public and the policymakers in congress. As I lay out in my methods chapter, I will use the Near-Vector Autoregression approach known as Seemingly Unrelated Regression to estimate a series of equations designed to approximate the dynamics of concern for the environment as expressed and exchanged by the public, press and the policymakers.

Assuming that the models are theoretically sound, Granger causality tests and Impulse response functions should permit the diagnosis of whether mediated shifts in media attention precede changes in the policy and/or public agenda. As I have outlined above, I will construct media variables as separate print and picture agendas. By doing so, my objective is to determine the comparative influence of each of these agendas on policymakers and the public.

Second, I want to shed some light on the debate concerning the signaling and framing models. As I've argued in earlier chapters, these models suggest competing explanations of how interests are able to influence policymakers and the public. The signaling model contends that the public has constant if latent preferences. Interests influence lawmakers to act not by changing public preferences, but rather by pointing to or signaling the true public preferences when they are consonant with the goals of the

interest group. In defining the nature of signaling and public opinion, Kollman writes that “the salience of a policy issue must be considered *exogenous* in that there is something fixed and unknown to policymakers about salience that the group claims to be able to demonstrate through outside lobbying”(p.10).⁴⁸

Framing theory, while not explicitly hostile to the contention that aggregate public opinion may be stable, is more receptive to the idea that interest groups can use the media to both mobilize the public and change preferences. Moreover, according to research on the psychology of framing, both issue mobilization and preference are influenced by a mechanism that is essentially the same. People are mobilized by making an issue salient; their preferences can be influenced by making a particular evaluation of that issue salient. In any case, framing theory implies that in the competitive marketplace of public policymaking that political interests will use competing frames to influence the public and the policymakers to achieve their policy goals.

Through the analysis presented below, I will be able to speak to these competing models and throw empirical support one way or the other. The findings should provide some evidence to indicate whether framing or signaling is better at explaining how the public and policymakers are influenced by the media. Clearly, if the evidence shows that public opinion is not exogenous to the dynamics of press and policy action we can consider this as evidence against the signaling model. If raised salience in the news media – whether it be pictures or text results in the increased salience of the issue amongst policy makers but not amongst the public, then the evidence supports the explanatory power of the signaling model.

⁴⁸ Emphasis in original.

Analysis Strategy

I will begin my investigation by estimating a three-equation SUR model similar to the one used by Soroka (2002). The methods and analytical structure that follows conform closely to Soroka's methodology (2002) and is in accord with the approaches outlined by both Hamilton (1994) and Enders (2004). After presenting the results of the three-equation model, I will expand my analysis to include a four equation system which includes a measure of the photographic agenda. Block causality tests will be used to determine if the four equation system is more explanatory than the commonly accepted three equation system. Granger exogeneity tests will be used to determine causality and impulse response functions will be calculated and plotted to show the influence of one variable on another over time. As is common in VAR analysis, estimations of the models themselves will not be presented here.

Coefficients are of little value in VAR/SUR methodology since systemic indirect effects make interpretation difficult (Gujarati, 1995, p.749; Soroka, 2002, p.78). Further, as Soroka writes, "multicollinearity probably precludes examining the individual coefficients, since it produces that possibility that while the overall effects are accurate, the individual coefficients are not" (p.127). In their evaluation of the use of VAR methods in political science, Freeman, Williams and Lin (1989) make the point that the tradeoff between structural equation modeling and VAR is one of accuracy of causal inference (VAR) for quantitative precision (Structural Equations) (p.842).

In the place of coefficients, I will use Granger causality tests to test hypotheses and the direct effects of one variable on the other endogenous variables. Impulse response functions are used to gain a more detailed conception of direct and indirect effects. My

first research question is concerned with whether the news media's photographic or text agenda (or both) influences the salience of environmental concerns in the public and the policymakers in congress. Granger causality tests determine whether lags of one variable are significant predictors of any of the other variables in the system. Enders (2004) explains that the Granger test is testing the null hypothesis that the coefficients of the lagged predictor variable are zero (p.283). If a chi square test indicates that the Granger results are significant at some pre-specified level ($p < .05$) then we can confidently conclude that the coefficients are not zero and that the lagged variable "Granger causes" the other variable.⁴⁹

Impulse response functions will not be used to test hypotheses directly, but to add illustration and help discern the indirect relationships between the variables over time. Impulse response functions allow for the interpretation of direction of effects and duration of effects – something that we cannot determine by Granger tests alone. Further, because Granger causality tests are only measures of direct effects, Impulse response functions provide interpretive value here as well.

The impulse response function is an impact multiplier that is the moving average representation of each of the variables over time. An autoregression can be expressed in terms of its moving average, where the value of the variable at each time period is an accumulation of present and past shocks. An n -variable VAR has a *vector* moving average – called an impulse response function – and it expresses current and past values of the n types of shocks. Plotting impulse response functions over time shows how the time path of a variable is affected by a stochastic shock. The impulse response function is

⁴⁹ See also Gujarati, p. 621 for explanation of Granger causality methods.

useful for showing how a system of endogenous variables responds to a shock to one of the variables. Impulse response functions are best understood visually. The impulse response plots display clearly how a shock to one variable impacts the moving average of the other variables in the system over time (Edwards and Wood, 1999; Soroka, 2002).⁵⁰

VAR methodology assumes that each of the right hand side equations contain the same number of lagged endogenous and exogenous variables. There are situations, however, where this assumption is unrealistic or unsound. In the case where there are theoretical or empirical reasons to assume that any of the equations contain different predictors, SUR is the more appropriate technique estimate the system. SUR uses GLS to estimate each equation in the system together (Gujarati, 1995; Enders, 2004). As Soroka points out, the use of SUR estimation is not widespread in political science but it has been applied in a variety of studies (Chappell, 1990; Chappell and Suzuki, 1993; Chubb, 1985; Ferejohn and Calvert, 1984; Freeman, 1983)

SUR will be used in this analysis. There are theoretical and empirical reasons to expect that the influences on press, policy and public are different and unique to each equation (Soroka, 2002, 75-76), thus GLS is more applicable.

The use of SUR to estimate multiple equation models in conjunction with the associated impulse response functions should provide a strong quantitative measure of how pictures and text influence policy and public agenda. Further, by using Granger causality tests I should also be able to provide evidence that supports one of the two models that compete to explain of public lobbying. While VAR/SUR methodology is

⁵⁰ In order to calculate impulse response functions, restrictions must be imposed. As such, impulse response functions are calculated from a system that is slightly different than the one used for Granger estimations. In following with Enders (2004) and Soroka (2002), I use the Bernanke/Sims decomposition. See Appendix F for a more detailed discussion of variance decompositions.

infrequent in political science and mass communication, the use of Granger causality tests and impulse response functions are accepted methods of interpreting VAR/SUR estimations (Bartels, 1996; Cook and Gronke, 2005; Edwards and Wood, 1999; Enders, 2004; Hamilton, 1994; Soroka, 2002).

I will follow Soroka (2002) in presenting my results. Methods used in this chapter will include graphs of the time series themselves, Granger exogeneity tests, and impulse response functions. Where my modeling approach differs in a substantial way from Soroka's, I will provide theoretical and empirical justification for the alterations.

The three equation model will provide me with a basis from which to examine the relative merits of the signaling hypothesis and a restricted model from which to test the empirical justification for including a photographic variable in a model of dynamic agenda setting. I will add to the accepted three-equation model by expanding the media segment beyond the simple textual agenda to include a parallel measure of the pictorial agenda. Empirical support for or against the inclusion of the photographic agenda will be based on block causality and Granger causality tests.

Lag Selection

Appropriate lag length is a key consideration in the construction of a VAR/SUR model. Deciding how many lags (p) to include is a matter of balancing degrees of freedom considerations with proper model specification. As Enders (2004) writes, "appropriate lag length selection can be critical. If p is too small the model is misspecified; if p is too large, degrees of freedom are wasted" (p.281).

The accepted strategy for determining lag length of endogenous variables is to estimate a model with a maximum number of lags and then compare that *unrestricted*

model with *restricted* models that include lesser lag lengths for each endogenous variable (Enders, 2004). While it is possible to include separate lag lengths for each endogenous variable of interest, Enders writes that it is common practice to use the same lag length for all equations. The proper means by which to compare the equations is achieved not by an F-test, which would be appropriate for a single equation comparison, but a likelihood ratio test. The likelihood ratio statistic is:

$$(T)(\log|\Sigma_r| - \log|\Sigma_u|) \quad (4.1)$$

where: $|\Sigma_r|$ and $|\Sigma_u|$ represent the determinants of the variance/covariance matrix of the residuals for the restricted and unrestricted equations respectively and T equals the number of usable observations. This statistic is compared to a χ^2 distribution with degrees of freedom equal to the number of restrictions in the system. If the test statistic is larger than χ^2 at a pre-specified level of significance then we will be able to reject the null (of the restricted system). Values of a test statistic that are larger than χ^2 , in other words, suggest that the unrestricted model is preferable.

While Sims (1980) suggests the following variation of the statistic:

$$(T-c)(\log|\Sigma_r| - \log|\Sigma_u|) \quad (4.2)$$

where c equals the number of parameters estimated in each equation of the unrestricted system. I chose the former because Sims' recommendation is for analyses where small sample bias is a concern (Sims, 1980; Hamilton, 1994).⁵¹

⁵¹ Sims constructs his alternative statistic for analyses where "the degrees of freedom left in the asymptotic χ^2 distribution for the likelihood ratio test statistic is not a different order of magnitude from the degrees of freedom left in the data after fitting the model" (p.17). That is not the case here. For each equation in the four-equation model, the number of observations is 281 and the number of observations is equal to or less than 86. The degrees of freedom used for the likelihood ratio test statistic calculation for the initial lag test is 16 (6 lags compared to 5 lags in four equations).

In constructing models for time-series analysis, Enders (2004) suggests that care should be taken with paring down lag lengths. One can lose critical explanatory power by unnecessarily dropping lags (p.282). Gujarati (1994) mentions, moreover that Granger exogeneity tests are known to be highly sensitive to lag lengths (p. 622). In principle, then, in selecting lag lengths one should “begin with the longest plausible length or the longest feasible length given degrees of freedom considerations” (Enders, p. 281).

With these concerns in mind, I began with a starting point of six lags. Soroka uses this as his theoretical maximum because he makes the assumption that “any impact of one agenda on another would happen within a six-month period” (p.76). I followed the paring down procedure outlined above and compared 6 lags with 5, 4, 3 and 2 lags. The χ^2 tests indicated that the first restriction was binding ($\chi^2=29.931$, 16 df), therefore I decided to use six lags for all the endogenous variables. Lag lengths for exogenous variables were selected in an identical manner. Again, six lags were chosen by the likelihood ratio tests.⁵²

Environmental Time Series Trends

Figures 4.1 and 4.2 illustrate the time series for environmental issues. Figure 4.1 shows shifts in attention towards the environment by policymakers, the public and the two media measures – pictures and stories. The trends in the first four charts demonstrate a wavelike pattern to interest in the environment. Public opinion, policy action and media attention are cyclical. Downs (1972) argued that public and policy attention towards ecological destruction goes through a cycle of raised and then diminished concern. What

⁵² Lag selection was calculated in the four equation model, since this is where most of the hypothesis testing will occur.

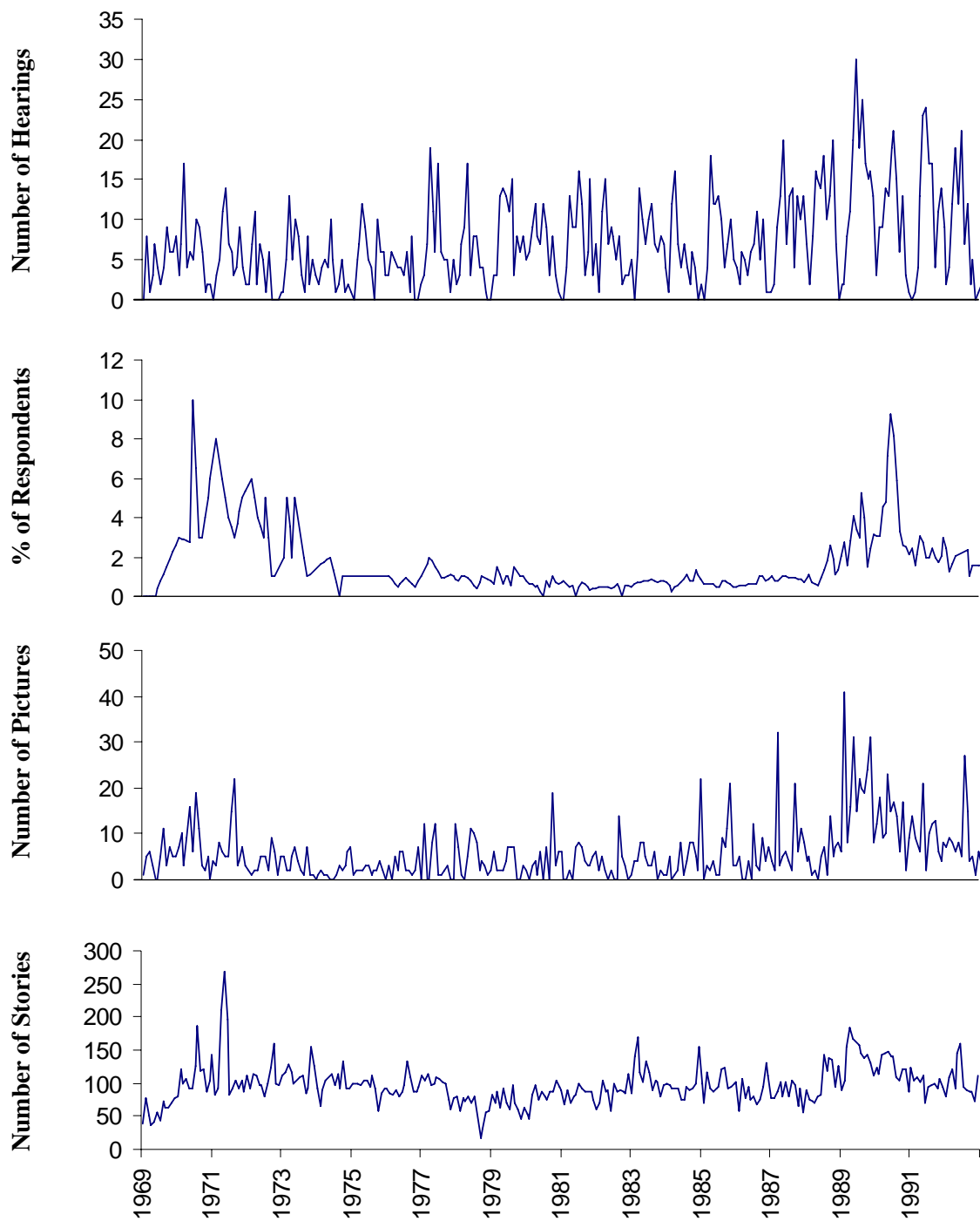


Figure 4.1: Environmental Time Series

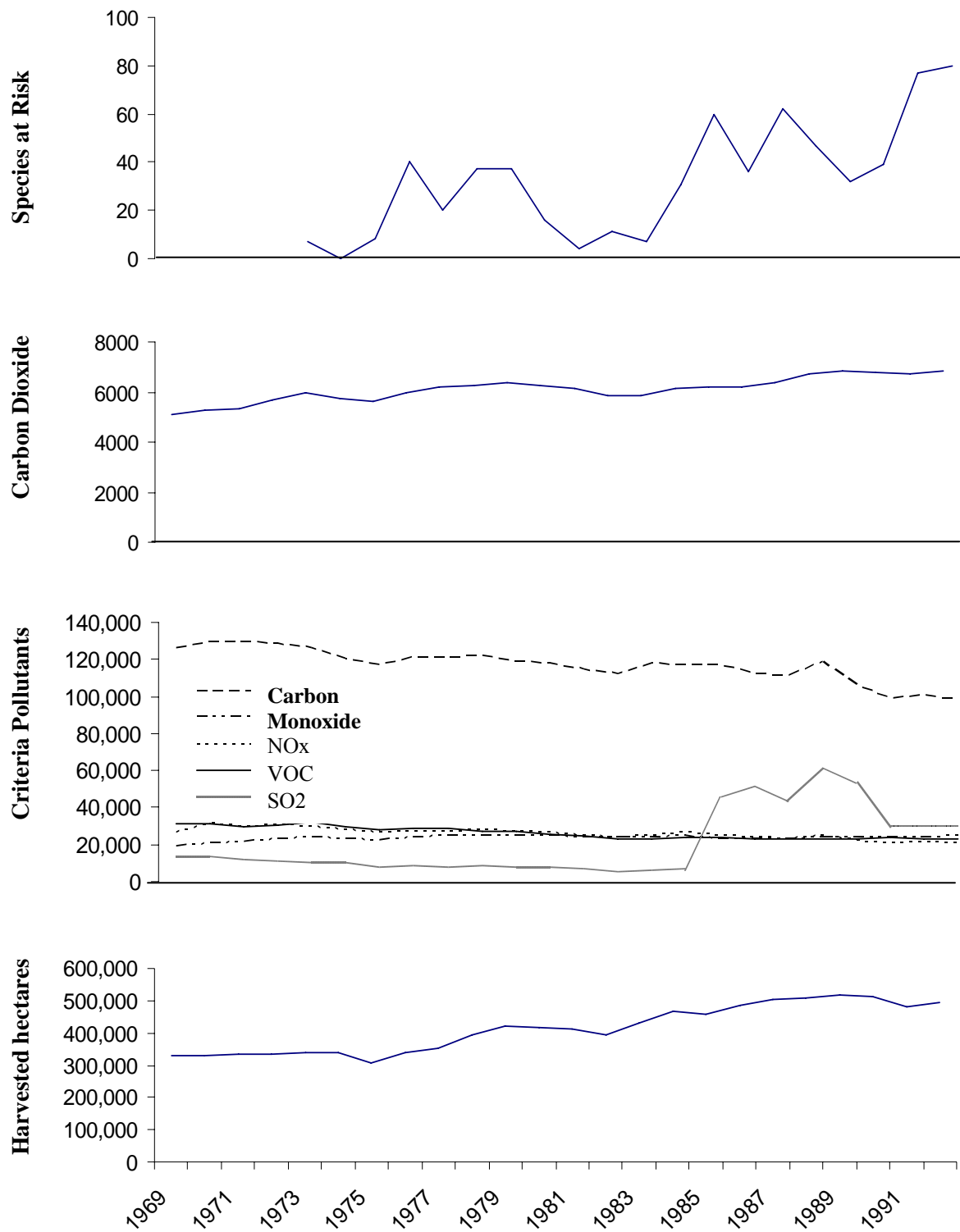


Figure 4.2: Environmental Real World Indicators

the data show here is that that cycle appears to repeat itself. This movement is most apparent in the time trend of the most important problem. The picture agenda shows a similar path to the public agenda. The environmental story agenda is more subtle, but it appears to conform to the overall surge-decline-surge pattern as well. The policy agenda appears less cyclical than the others, or may in fact be cycling more often. The seasonal pattern of committee meetings compounds the pattern somewhat. Still, contrary to Downs (1972) and consistent with Peters and Hogwood (1985) policy activity continues to address the problems – perhaps through organizational succession, refinement and institutionalization (e.g. through committees) – long after salience in the public is diminished.

A cursory examination of the two media agendas should dispel the notion that the print and picture agenda are identical. A statistical test of association confirms this impression ($r_s = .3192$). While they display a similar pattern overall, a detailed look at the various crests and troughs show unique patterns. Print coverage is of a higher magnitude and is more stable over time. Photo coverage is much more erratic; peaks and valleys are steeper. Year to year, the picture and print agendas also appear to be responding to slightly different stimuli. In the first decade, story coverage crests in mid 1971, photos build earlier but crest in 1972. In the second decade, photos crest in 1981, 1983, 1985, 1986 and 1987. Stories spike in 1983, 1985 and 1987. The highest point for stories is 1983 and for pictures it is 1987. Both reach a crest again at the beginning of the third decade. For pictures, this appears to be the most intense period of coverage over the 23 year period. Stories on the environment seem to have been at their most intense during late 1971.

Both the media agendas appear to precede upward trends in public concern for the environment. Past agenda setting research on environmental issues finds that the public is influenced by the media (Soroka, 2002). A first look at the data appears to suggest a similar pattern here.

Figure 4.2 shows the time series patterns of some of the key environmental indicators across the 23 years considered in this analysis. Timber harvest, endangered species and carbon dioxide show generally worsening conditions. Each year, the number of species newly listed as endangered has tended to move upward. The emissions of carbon dioxide have increased and the annual harvest of roundwood lumber has increased steadily.

The record for criteria pollutants is somewhat more inspiring. Trends for four of the five criteria pollutants appear to show a reduction in emissions. Only airborne particulate matter has a higher rate of discharge in 1992 than it did in 1969.

Finally, a simple comparison of the empirical indicators of environmental problems with the measures of media, policy and public attention to the issues reveals some interesting contrasts. The measures of real world conditions are much more flat in comparison to the volatility of the other agendas. This makes sense because it is the news, policy and public agendas that are theoretically responding to the movements of the real world environmental problems in addition to each other. The volatility could reflect the broad ranges of homeostatic tendencies – of constantly correcting reactions – from parts of the system or as Downs (1972) and Funkhouser (1973) said, the “up and down” of ecology could simply be divorced from the real world and instead be due to each institution following its own cues.

Three Equation Model: Granger Causality

While a Granger causality test of the three-equation model does not provide any evidence that directly addresses the first research question, it does provide the groundwork from which to begin analyzing the dynamics of press, policymakers and the public. With this in mind, I will present the results of the three-equation model by putting them in context with other findings on the agenda setting process. The variables included in this system are the three basic measures described in the previous chapter: the count of *The New York Times* articles (*media-print*), congressional committee action (*policy*) and the percent of people who think that the environment is the most important problem (*public*). Although the measures themselves are different, the model is similar to that used by Soroka (2002). Following the discussion of the three equation model, I will present evidence that supports the inclusion of a photographic variable into the system.

Table 4.1 displays the results of the Granger exogeneity test for the three-equation model.⁵³ The Granger test provides statistical evidence for whether lags of one variable “Granger cause” any of the other variables in the system.⁵⁴ The test in essence measures whether past values of a given variable improve the forecasting (reduce forecasting error) of another variable in the system by comparing a restricted model – where lags of one endogenous variable are held to zero for all equations – with an unrestricted model. For interpretation purposes, the bivariate case uses an F-test to test the restriction, while the

⁵³ While it is important to include the real world factors as control variables within the model of public-policy-press dynamics interpreting their effects on the endogenous variables is beyond the scope of this dissertation. As such, I will include the results of the collection of eight environmental and economic real world variables but I will not discuss the findings beyond a cursory analysis in the four-equation model.

⁵⁴ Granger causation means that past values of the independent variable help forecast future values of another variable (Enders, p.283). Also see Gujarati p. 620 for a description of the bivariate Granger causality test and Enders (2004, p.284) or Hamilton (1994, p.309) for a discussion of the multivariate test.

Table 4.1: Causality in the Three Equation System

Variables				
Dependent	Independent	χ^2	p	df
Policy	Media-print	6.8259	0.3373	6
	Public	15.5484	0.0164	6
	Policy	50.7035	0.0000	6
	Real World – Environment	54.22673	0.0000	48
	Real World – Economic	18.5084	0.0051	6
	Budget	.0069	0.9966	2
	Fiscal	2.7690	0.4286	3
Media-Print	Policy	7.2975	0.2942	6
	Public	17.7143	0.007	6
	Media Print	55.3732	0.0000	6
	Real World – Environment	96.8259	0.0000	48
	Real World – Economic	3.9887	0.6782	6
Public	Policy	13.7855	0.0321	6
	Media-Print	22.323	0.0011	6
	Public	287.2319	0.0000	6
	Real World – Environment	136.1926	0.0000	48
	Real World – Economic	7.0153	0.3194	6
Period	1969:7 - 1992:11			

multivariate case uses a χ^2 statistic. The χ^2 statistic in this case tests whether coefficients for all lags of the independent variable are significantly different from zero (the null hypothesis) (Soroka, 2002, p.82). The test statistic is computed with the identical likelihood ratio statistic outlined above. A significant χ^2 test means that the variable precedes or “Granger causes” the dependent variable.

The Granger results show evidence that each of the time series are autocorrelated.⁵⁵ Past values of each variable are significant predictors of their current values. This suggests that a certain degree of momentum is at work in each of the endogenous variables. Attention paid to environmental issues by congressional committees, for instance, is significantly ($p=0.0000$) predicted by its actions in previous months. It is worth noting that public opinion is by a wide margin the most autocorrelated series. This means that public opinion is the least volatile of the series. If we consider the relative magnitude of the χ^2 values, public opinion is nearly three times that of media-print and roughly six times that of policy. While these numbers do not have a substantive interpretation other than we can be much surer that public opinion is influenced by itself, it does appear that the public opinion is influenced much more by itself than by other variables. Looking back at the time series graphs, we can observe that the path of press coverage and especially policy are more skittish than the public opinion time trend. The comparative consistency of the public opinion trend may be inflated by the interpolation of missing public opinion data. It may also be a reflection of public opinion being influenced by itself. Logically, it makes sense that public opinion is strongly influenced by its own momentum (Page and Shapiro, 1992).

The results also show that there is a broad range of influence across variables over time. Public concern for the environment influences both policy attention and media attention ($p=0.0164$ and 0.007 , respectively). Policy influences public opinion ($p = 0.0321$) but not media attention ($p = 0.2942$). Likewise, media attention influences public opinion ($p = 0.0011$) but not policy action ($p = 0.3373$).

⁵⁵ Autocorrelation is used here to refer to the exogenous variable not the disturbance terms – which would violate the assumptions of OLS. Autocorrelation of exogenous variables is the norm in time series.

Real world variables are surprisingly strong influences on all three endogenous variables. The policy agenda is significantly driven by both environmental ($p=0.0000$) and economic ($p=0.0051$) indicators. Environmental indicators alone have an impact on the public ($p=0.0000$) and media-print ($p=0.0000$) variables. Obviously, these are reassuring findings. At least as it is measured here, public concern, policy action and media attention are at least in part a reflection of empirical measures of the environmental problems.

Insofar as systemic endogenous effects are concerned, the public is influenced by both policy and media attention, the news media is influenced by public opinion but not policy, and policy makers are influenced by the salience of environmental concerns in the public but not by media coverage of the environment. What these findings suggest is that policy and media attention are exogenous with respect to each other – insofar, that is, as we can assume that this three-equation model accurately estimates the interrelationships of policy, public opinion and media attention to the environment. In other words, media attention and policy action are not directly related. Public opinion seems to be operating as an indirect link between print media and policy. A thumbnail sketch of the bidirectional dynamics are outlined in Figure 4.3.

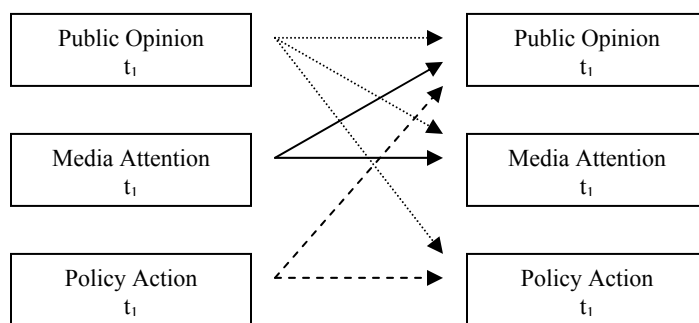


Figure 4.3: Dynamics of a Three Equation System

Print Media to Policy

On first glance, the causal disconnect between media and policymakers is not what we would expect. Considering the literature that finds the media are influential in setting the policy agenda (Cook, 1998; Kingdon, 1995; Soroka, 2002; Sullivan et al., 1993; but *cf.* Edwards and Wood, 1999), how can it be that *The New York Times* has no direct causal impact on the policymakers' attention to the environment?

The literature on sourcing of the news, however, throws a different light on the dynamics of press and policy action (Ericson et al., 1989; Gans, 1979; Tuchman, 1972). Political and economic elites are, the research argues, the principal sources that reporters use to construct news stories. Reporters build stories on what elites say and within the bounds of elite consideration (Hallin, 1986). The policymakers, in other words, are part of that group of individuals within the policy network that have set the bounds of what gets reported in the paper. Attention paid to the environmental concerns would, by nature of the journalistic sourcing conventions, largely be predicated by elite attention.

In addition to theoretical reasons, the variable itself should mitigate press impact. I've chosen a rather blunt measure for my policy attention variable – a committee meeting, which may follow its own institutional routines as Edwards and Wood (1999) suggest.⁵⁶ One should not expect to see the same degree of media influence on this variable as we would in a study where policy attention is of a lower threshold. Other policy measures that are more sensitive, such as a count of days of committee action or

⁵⁶ In this case, the blunt measure is preferable to the more responsive one. It is of more substantive interest to the present study to determine what influences policy *action* as opposed to the amount of words spoken by policymakers.

the volume of words spoken in committee might register more susceptibility to influence.⁵⁷

Soroka, for instance, employs a more responsive measure of what constitutes policy action – the extent of parliamentary debate during question period. Not only does this measure have finer gradation, but because performances in question period are intended in part as a strategic public display, the measure is expected to be more reactive to the news of the day.

In any case, the findings show that stories have no significant impact on environmental committee meetings. Environmental news stories influence the public to become more concerned, but they do not cause policymakers to call meetings to deal with the public problem.

Policy to Print Media

Looking at the press-policymaker dynamic from the other side, Granger results show that policy action doesn't directly influence press coverage either. Initially, this appears to challenge the hypothesis that the policymakers – as sources – are leading the press. Again, however, it is the policy variable that explains the discrepancy. Findings of a non causal relationship from committee action to press coverage do not contradict the idea that policymakers are sources of news – only that holding committee hearings in and of themselves does not cause coverage.

⁵⁷ In using monthly time series, it is possible that I may in fact be underestimating the dynamics between some of the endogenous variables. If policy-press-media feedback is highly responsive, then a monthly measure of cause and effect may not capture the patterns of influence. Policy may be influenced more immediately by the media – on a daily or weekly cycle. If this is true, the effects will go largely unregistered in a monthly time series because the shock and impact take place between measures.

The results lead us to infer that public opinion operates as a conduit of sorts between policy makers and the media. Granger tests provide us with only a measure of direct effects (Soroka, 2002, p.79). What appears to be happening between policy and media is an indirect effect. The dynamics, in other words between policy and media attention are completely captured through the vicissitudes of public opinion.

These results are surprising because they contradict the collection research that contends that the media operate as a connection in between policymakers and the public. As Herbst (1998) and Leogrande (in Glynn et al., 1999), for instance, maintain that it is the public that is removed from direct connection with policymakers. Policymakers neither have the money nor the tactical necessity to respond to an unfocused public on issues that may not be salient.

On the other hand, policymakers don't necessarily have to poll the public to make mostly accurate estimations of the status of public concern. Collectively, policymakers may be constructing the same sort of dead-reckoning or estimation of public anxiety towards the environment that the editors for news organizations are making.

Three Equation Model: Framing and Signaling

The Granger causality tests of the three-model equation do not as much corroborate the framing model as they do undercut the signaling hypothesis. The evidence presented here is specific to the salience of environmental issues, but findings do show clearly that the press Granger causes a shift in public attention.

The signaling hypothesis, as outlined by Kollman, argues that the public is not influenced by interests – that in fact public opinion is exogenous to the political maneuverings of policymakers and interest groups. The Granger causality tests do not go

so far as to show a causal connection between interest groups and public opinion (that will be left for a later chapter) the tests do show that information presented in the media does influence the public's concern for the environment. As stories on the environment increase, so does public anxiety toward environmental degradation.

Impulse Response Functions: Three Equation Model

Granger causality tests provide a dependable measure of direct influence or precedence of one time-series variable on another, but do not offer us any information as to the magnitude or direction of effect. Impulse response functions permit us to observe how one endogenous variable affects the moving average of another endogenous variable in the system.⁵⁸ Impulse responses plotted over a twelve month period provide, for example, a visual illustration of how an increase in media attention influences public concern or how an increase in public concern impacts policy action.

Figures 4.4 through 4.6 visually present the impulse response functions for each of the three endogenous variables over a twelve-month period. Impulse response functions are presented as a system in the top chart and then each of the agendas is isolated below so that I may present the impulse response functions with confidence intervals.

As the Granger tests indicate, the impulse responses show that media significantly influences public opinion, but has a limited effect on policy, that policy doesn't influence the press, but does have a significant impact on public opinion, and that public opinion influences both policy and press coverage. What the impulse responses add to the Granger findings is the valence of that influence and the representation of that influence

⁵⁸ As noted earlier, the impulse response functions are plotted using restrictions. As such they present results from a slightly different system as estimated by the Granger causality tests.

over time. For one, we can now see that except for the public's response to policy action, each of the endogenous variable's significant responses to an innovation in one of the other variables is positive. Only public opinion works as negative feedback to policy action. For democratic theorists, this is good news, because it shows that the public is operating as a moderating force on policy action. This is similar to Wlezien's (1995) concept of the public operating as a thermostat. When policy action becomes too stringent, the public becomes less concerned about environmental protection; when policy becomes too lax, the public becomes more concerned. The impulse responses also show that the effects of the impulses tend to happen within the first few months and then diminish over the year. Only in the case of media impact on public opinion, do significant effects persist over the full year.

Impulse Response Functions, Standardized and Real Units

Impulse response functions in figures 4.4 through 4.6 demonstrate the effect of a one-unit impulse in each of the endogenous variables and its effect on the other two agendas over the twelve month plots. The top panel of every figure represents a composite of the three-equation system and is included for comparison purposes. It shows impulses and responses in standardized units. The bottom two panels show the real-unit effects of a single-unit shock and include confidence intervals. Confidence intervals illustrate the significance of the estimation and the relative accuracy of each response over time. In figure 4.4, for example, the top panel shows the systemic impact in standard deviation units of a shock to the print-media variable. The bottom two panels illustrate the real-unit impact and confidence intervals of a single story shock on policy action and public opinion, respectively.

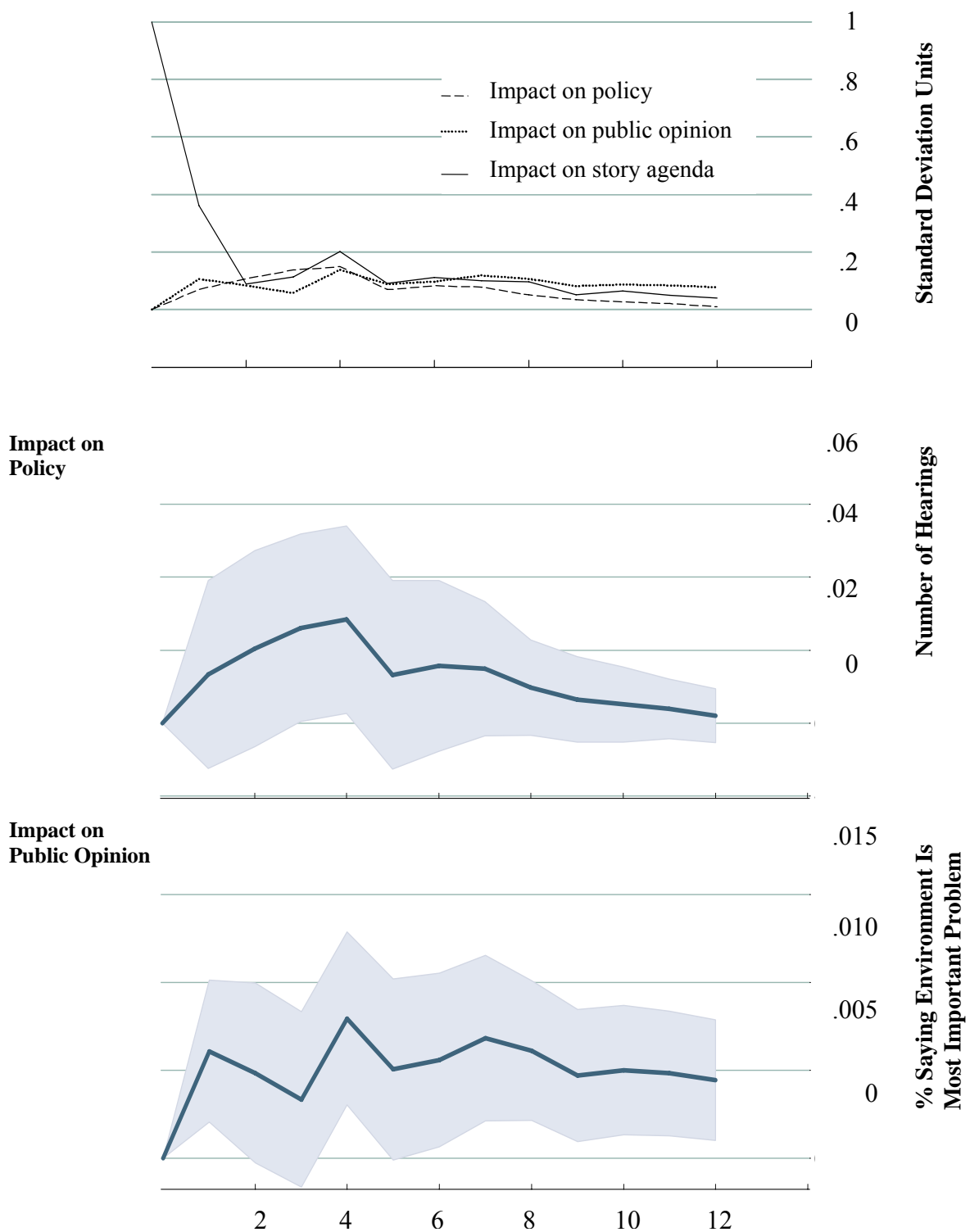


Figure 4.4: Impulse Response Functions – Shock to Print Media

I have chosen to present the data in both real and standard deviation units because both have interpretive value. Standardized units are ideal for comparison and real units are more meaningful. Keeping units intact allows us to make sense of the systemic reaction. In this case we can interpret the effect of a rise of one-percent of the public who says that environmental issues are the most important problem with a unit change in policy salience (a committee hearing being called) or a unit change in media (published story).

But keeping units real can be misleading when we want to compare effects across variables. For example, in comparison to public opinion shifts, media coverage is measured on a unit scale that has bigger numbers and is prone to much more variation. Shifts in several units of media attention – say from 20 to 28 stories per month is likely, while a shift of the same scale (8 points) in the public opinion measure is rare indeed. So that we may be able to compare the relative effects across variables, I include the composite plot in which all units (impulse and response) have been standardized.

Shock to Print Media

The top panel illustrates the effects of a standardized unit shock to the print media variable. On first glance, it seems as if the impacts on public opinion and policy action are similar. But confidence intervals in the lower panels show that the effects on public opinion are much more certain.

Policy action appears to be of a greater magnitude, but it is difficult to statistically distinguish this response from zero. In fact, we couldn't say with confidence that for most of the 12-month period that the response might in fact be negative. Moreover, the typical aggregate response to the impact of a single unit impulse to media over time will not

result in a single policy meeting (.312) and even this is statistically insignificant. Only during the third and fourth month can we say with confidence that there might typically be a positive response in the likelihood of policy action – and only if the magnitude of the shock is nearly 40 times than a single unit would that response result in a single committee meeting being called. There appears to be a slightly delayed but very brief window and a very high threshold for media attention to influence policy action.

To the contrary, public opinion displays a persistent positive response – in a real and statistically significant way – to a one unit impulse in media attention. As is shown in the bottom graph in Figure 4.4, the confidence intervals are so narrow that we can be fairly confident that public opinion responds quickly and in a lasting way to a small shock to the print media variable. Only in the second, third and fifth month is the movement of public salience difficult to distinguish from zero, statistically speaking. The net effect of a single story shock will result in a positive shift salience in public opinion that persists even a year after the story.

What this means is that with just one extra story per month, public concern for the environment will typically increase by nearly .01%.⁵⁹ While this could hardly be considered a leap in public attention, we can be quite confident that it will happen. Moreover, heightened public concern will continue for a full year. Policymakers, on the other hand respond with a high degree of variation. We cannot confidently say what the policy response to an increase in media attention will be.⁶⁰

⁵⁹ As the top panel indicates, .01% is the equivalent of 1/5 of a standard deviation shift.

⁶⁰ The difference in the stability of reaction and the confidence with which the typical response can be estimated is in part due to the measures themselves. Public opinion has in effect been measured in a continuous manner. The most important problem marginals are given in whole numbers, but interpolated values are fractional. Committee meetings – the decision to call or not call a meeting is a discrete measure. Still, the measures reflect the dynamics of each agenda and the relationships within the entire system. The

Shock to Policy

In the second set of impulse response functions, media coverage and public opinion respond to a shock in the policy variable. The impulse in the top panel reflects a single standard deviation shock to the policy variable and its impact (in standard deviation units) on the other two variables. The lower two panels show the impacts on public opinion and media attention in actual units.

Consistent with the Granger tests, the response of news media appears to be quite ambivalent. It is hard to pin down whether the press will cover environmental topics more or less than before the committee meeting was called, although there appears to be a brief moment when we can identify an increase in press coverage.

Overall, the typical aggregate effect of a policy meeting being called would result in 1.466 articles over a 12-month period – a negligible response. For most of the year media coverage is expected to be indistinguishable from zero. In fact, the confidence intervals almost symmetrically border zero. During the second month, however, there is a significant positive response by the media variable. The results are slightly different from the Granger findings.

We should expect the tests to present slightly different accounts of the dance between media, policymakers and the public for two reasons. First, the decompositions used for the impulse response functions slightly change the dynamics of the system. The Bernanke/Sims decomposition makes restrictions on the system that are not present in the Granger tests. Second, impulse response functions consider both direct and indirect

results, examined with this in mind, make sense. The decision to call a committee meeting should theoretically present a higher threshold than a fractional shift in public opinion.

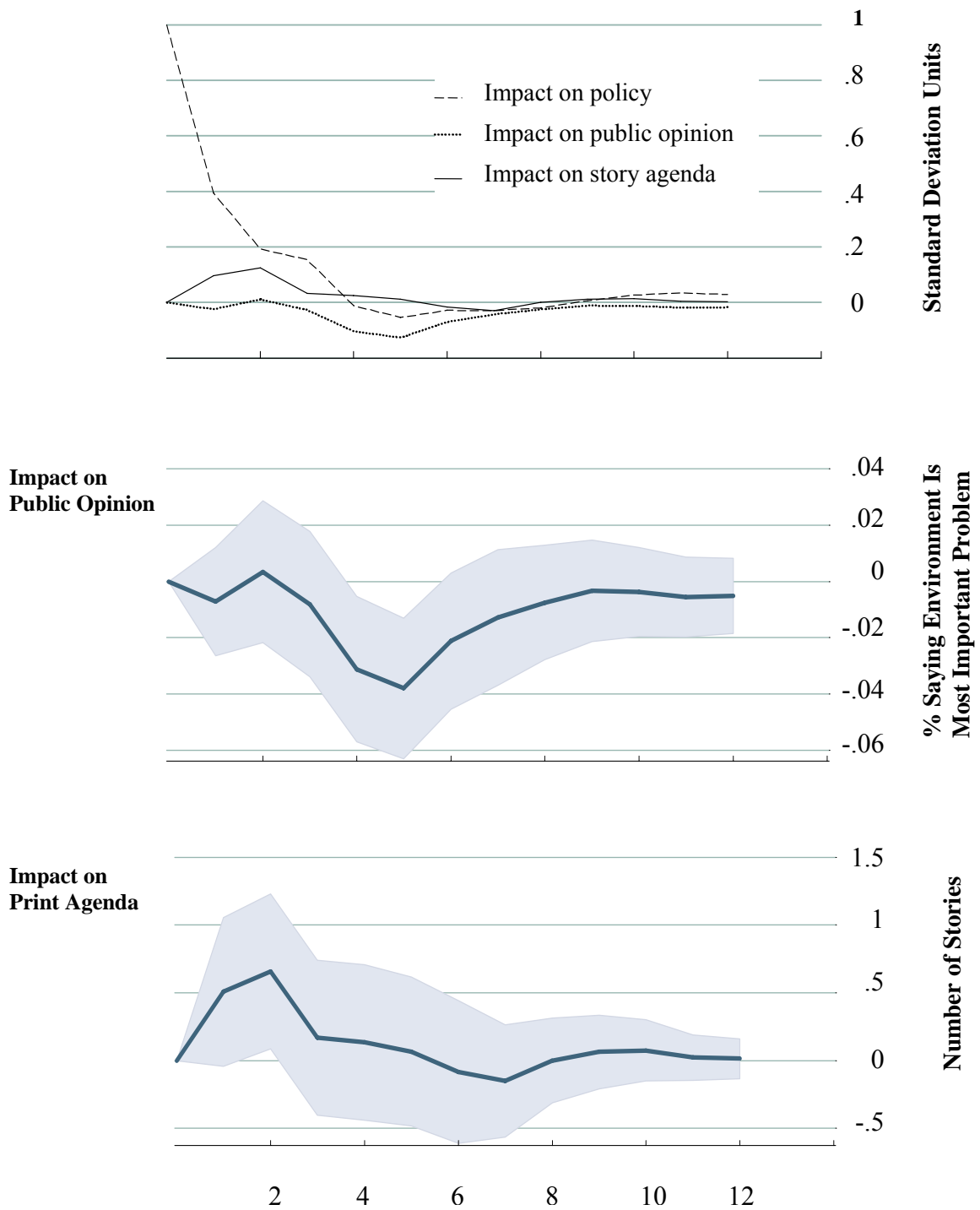


Figure 4.5: Impulse Response Functions – Shock to Policy

effects whereas the Granger tests address only direct effects. The path plotted by an impulse response accounts for the effects of other endogenous variables as well.

In this case, the latter is most probably responsible for the slight discrepancy. Feedback from the public opinion variable in addition to the policy impulse might just be enough to create a significant and positive response. There is a contemporaneous uptick in the public opinion variable in the second month and the media variable, as we will see, is quite responsive to the public opinion variable.

The shock to policy has quite a different effect on the public agenda. The public response to increased attention by policymakers is to become less concerned about the environment. As the politicians institutionalize environmental concern, public anxiety, it appears, diminishes and complacency takes hold or perhaps the public senses that the policymakers have gone too far (Wlezien, 1995).

Although the public is again significantly influenced by an impulse in another variable, the public responds quite differently to a policy meeting than it does to a news story. Following the media impulse, public concern rises immediately. Within the first month of the story appearing, public concern is significantly higher. But after policy action, public concern for the environment doesn't respond significantly until the fourth month. It seems that it takes the collective public a while to come to a consensus response to the policy action. Still, the public does register a significant response to policy action and that response is negative.

As the middle graph in Figure 4.5 illustrates, the public responds with uncertainty over the first few months, followed by a significant drop in public salience. The public may initially be uncertain or unaware of policy action, but by the fourth month they

respond negatively in a statistically significant manner. After 12 months, a single committee meeting has the effect of lowering public concern over the environment. The public, apparently observing that the policymakers have taken action on the environment actually become less concerned about environmental destruction.

Public response to policy action operates as negative feedback within the system and creates stability and corresponds well with normative democratic theory. A public that responds to policy action operates as a countervailing force. Furthermore, as Page and Shapiro (1992) and Erickson, MacKuen and Stimson (2002) argue, the collective citizenry appears to be operating in a rational manner. Far from being volatile, the public mood balances the political forces in operating the government. This is the dynamic democratic system envisioned by Baumgartner and Jones (1993). Democratic forces keep policy action in line with public mood: “when the system veers away from balance, it corrects itself, always tending toward an equilibrium between the demands of democratically organized interests and the policy outputs of government” (Baumgartner and Jones, 1993).

Shock to Public Opinion

Figure 4.6 shows that both press attention and policy action are both robustly responsive to a one-point surge in public concern for the environment, but that the effects are short lived. The institutional policy and media systems, it appears, are efficient at absorbing and reflecting the external shock and then just as swiftly returning to pre-shock levels. Both policymakers and the media respond quickly to the public’s concern for the environment, but immediately after both institutions act on the public concern, their attention shifts away again.

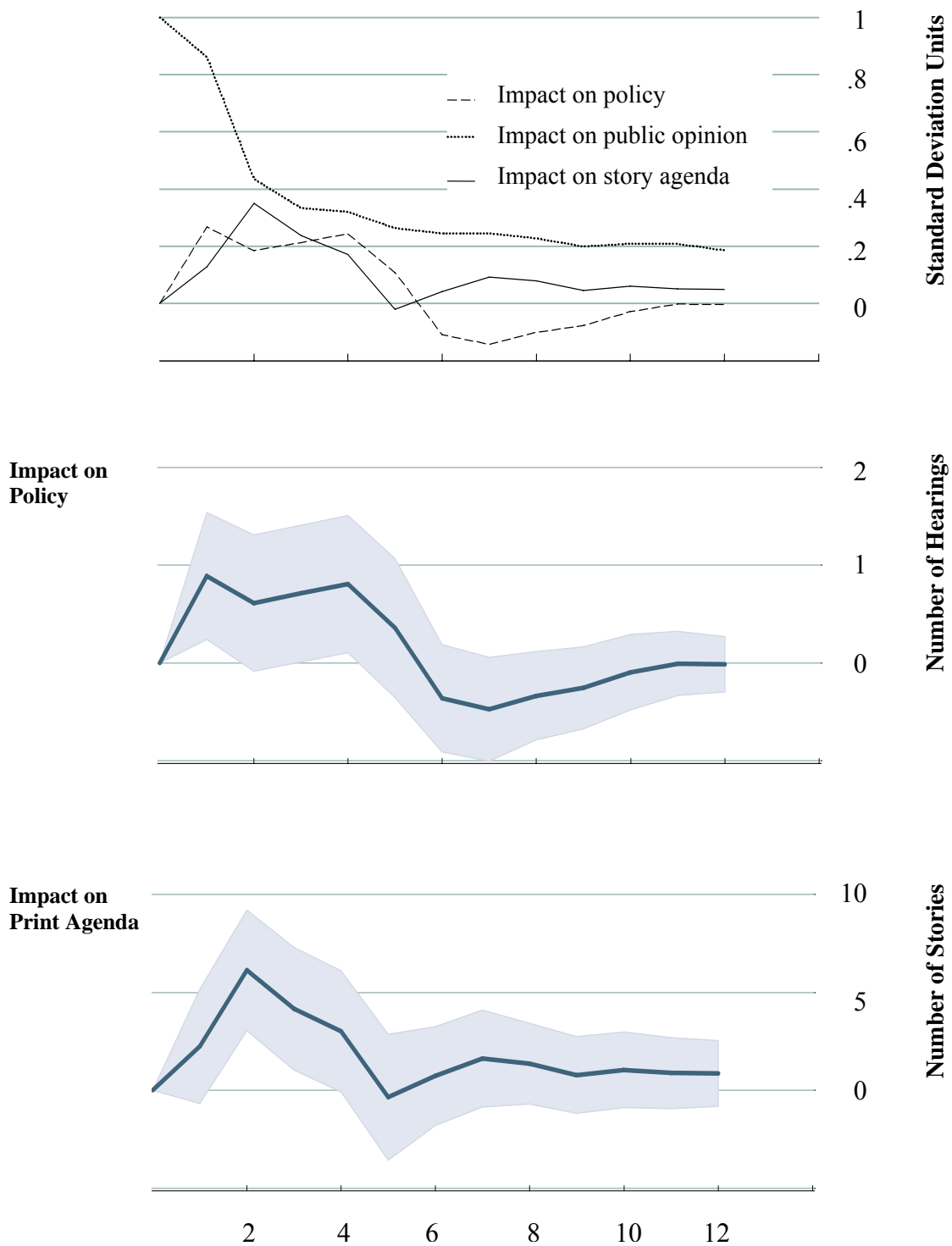


Figure 4.6: Impulse Response Functions – Shock to Public Opinion

Print media coverage displays a strong initial reaction to the shock to public opinion, peaking at period 2 and then falling off. Plotting media response with confidence intervals doesn't offer much additional information in this instance except to illustrate that the significant effects are registered within the first to third months. Long term effects appear hard to distinguish after the fourth month. It appears that the typical response from the media is to run more stories following a surge in public concern, but this is a very temporary response. After five months the level of coverage is hard to distinguish from the pre-shock levels.

In comparison, policy response to public opinion appears to register the public opinion shock sooner and in a somewhat less uniform manner than the media. The initial one-percent shock to the salience of environmental issues within the public is registered immediately by the policy agenda in the first month. The policy response is nearly a one-to-one relationship, where a single-point shock almost results in a variance of one committee meeting. Subsequent to this initial response, policy action fluctuates into negative and statistically insignificant territory. Interestingly, policy response appears to be more immediate than the media response (at least as it is measured in the three-equation model). The confidence intervals add to this interpretation. While the policymakers are, comparatively speaking, less consistent in their response after the second month, the initial narrow confidence bands in the first month show what appears to be an unswerving positive initial response.

At the same time, the plots show, consistent with the Granger findings of autocorrelation, that public opinion itself appears to be more influenced by its own inertia than the other two endogenous variables. Unlike policy and media shocks the

autoregressive effects of the public shock are much slower to degrade. Following the initial one-point shock, public opinion maintains its course much more consistently than any other variable. It seems that public concern is driven more by its own momentum or internal dynamic than by the influence of other variables.

Three-Equation Model Dynamics Over Time

Looking at the systemic dynamics overall, we can see that significant exchange between the endogenous variables occurs within the first five months and are primarily focused single-peak or single-dip responses. Policy makers and the press respond to innovations in each other and public salience immediately and in short-lived bursts. Only public opinion is affected by a media shock for a protracted period of time.

Both policy action and press attention are institutional and routinized responses. It seems likely, therefore, that they should respond in a more focused manner than the more diffuse public. Congressional committees and news media organizations have developed to respond quickly to these sorts of innovations. They are also just as quick to return to their pre-innovation position.

Print media, for example, surges in the second month and then recedes towards zero in response to both public opinion and policy shocks. Although the magnitude (and significance) of the shocks vary, the pattern is similar. Perhaps this is an artifact of the highly routinized structure of the news media. Shocks are quickly reflected by the press and – just as quickly – assimilated to the regular routine.

Policymakers, likewise, respond and re-adjust to systemic impulses in the system. Policy attention increases for four months following a single-unit shock to the media variable, then with as much conviction, diminishes. Similarly they respond immediately

to public opinion shocks. Just one month after the spike in public concern, policy makers are typically expected to call one additional committee meeting. This heightened attention persists for three more months, then re-adjusts towards the neutral point. This is especially interesting because the response seems to beat news media to the punch (at least in terms of print coverage).

Public opinion, however, doesn't quite conform to this pattern. While public opinion displays a single-peaked response to a policy innovation, there is initial confusion and the significant response is delayed. The delayed effect could suggest that the public as a collective is initially less attentive to the meaning of the policy action. The comparably slow response to the shift in policy could support the transmission of political information through social networks, where the vast majority of people become exposed to shifts in policy through people with whom they discuss political issues.

One clear exception to the rule of surge and decline, however, is the public response to an impulse to the media variable. A one-point shock to media attention directly manifests itself in public concern over the environment and that concern persists for at least twelve months following the initial shock. While there are moments where we cannot distinguish the effect from zero, the response of the public is much more enduring than any of the other endogenous variables.

Impulse Response Functions: Framing and Signaling

Impulse response functions add further evidence that the signaling explanation of the public-media-policy dynamics is inadequate. Contrary to Kollman's contention that there is some true public opinion that remains resolute or exogenous to the influence process between media and policymakers, we can see here that public opinion displays a

stand-out case of endogeneity within the system. In fact, more than any other variable, public opinion is influenced for a longer period of time, in a statistically significant way, by a shock to the media variable.

Still, the data provide some indication as to why the signaling model has remained compelling. The collective movement of public opinion in response to shifting attention to the environment from the press and policymakers is not as fickle, capricious and unstable as some charge (Converse, 1964; Zaller, 1992). Public opinion does remain constant in relation to the other variables which see a lot of relative movement and respond vigorously to shifts in public opinion. Movement in public opinion, at least as they are observed here are better described as being subtle and having strong inertia. Furthermore there is some evidence that media can move policymakers (at least in the third and fourth month) but this may in fact be more the result of feedback from an upward shift in public opinion.

At least within the context of salience, media coverage clearly influences public opinion and it is this response that is the stand-out in the system. In response to just a single story, public concern for the environment intensifies almost immediately, significantly and remains so for sustained periods of time. Public opinion is more stable than either policy or media attention, but it is also influenced much more substantially by media than any other dynamic relationship in the system.

Four-Equation Model

The three-equation system is a model of the commonly accepted model of press, policy and public exchange. The idea of an interaction between news stories, policy makers and the public is conventional in agenda setting and public opinion research

(Bartels, 1996; Edwards and Wood, 1999; Soroka, 2002; Zaller, 1992). In line with some emerging research, I have employed the use of time series statistics to empirically examine the dynamics of the model so that I may generally test competing hypotheses about the relationship of influence between the media, policymakers and the public. More directly, the three equation model is the theoretical and empirical base from which I will now depart to answer my first research question, which asks whether it is the salience of news pictures or stories that influences the public or amongst policymakers. To respond to this question, I must determine whether the press' photographic agenda has some explanatory power within the context of the accepted model. I must establish, that is, whether the standard three-variable model should also include news photographs as an additional endogenous variable.

To determine whether the photographic salience influences the policy and public attention towards environmental issues, I will first use a standard econometric test that is used to verify whether an additional variable should be included in a VAR. The findings presented below suggest that photography should be included. I will then reestimate the SUR/VAR with the photo agenda included as the fourth endogenous variable and conduct Granger causality tests and estimate impulse response functions.

Block Exogeneity Test

Results of a standard test to determine whether to include an additional variable into a VAR indicate that the photographic agenda should be included in the model. The research question and the literature examined suggest that there is a theoretical reason to include news photographs as part of any causal model of policy action and opinion change. Using what is called a block exogeneity test, we find that photographic salience,

in addition to the salience of news stories, improves explanation of causality within the system.

Enders recommends the block exogeneity test as the means by which to determine whether one should include an additional variable into a VAR (p. 284, 2004). If this were a single equation regression, we could use measures of goodness of fit (adjusted R^2 or Root Mean Squared Error) to determine whether we should include another variable. Assuming we had theoretical reasons to include the additional variable, a higher value of the Adjusted R^2 or a lower MSE would indicate that the additional variable should be included in the model. The issue here, however, is to “determine whether lags of one variable . . . Granger cause any other variable in the system” (p.284, 2004).

A block exogeneity test is simply a variation of a likelihood ratio test where we compare a restricted model with an unrestricted one. An unrestricted model includes the requisite number of lags (six in this case) of the test variable (photo agenda) as an exogenous variable in the three-equation system. In the restricted equation, all lags of the photo agenda are restricted to zero in the public opinion, print media and committee equations. Using the same likelihood ratio test outlined above, we calculate a test statistic, which has a χ^2 distribution with degrees of freedom equal to the number of restrictions in the equation.⁶¹

Results of the test indicate that the photographic agenda should be included in the equation. The test statistic ($\chi^2 = 56.2714$) is a strong indicator that the media's

⁶¹ In this case the number of restrictions are $3 \times 6 = 18$, since there are six lags restricted in each equation.

photographic agenda improves the explanatory power of the model.⁶² The media's photographic agenda does indeed significantly ($p < 0.0000$) Granger cause the other three variables in the equation. In terms of the research question, then, we can say with confidence that the photographic agenda in addition to the textual agenda appears to influence the system that includes policy and public attention towards the environment.

Granger Results

The inclusion of a photographic agenda into the press-policy-public system substantially changes how we understand the dynamics. First, aside from the real-world effects, the photographic agenda appears to be the exclusive driver of the policy agenda. The causal influence of public opinion on policymakers is completely erased – statistically speaking – by the photographic variable. When estimated in this new and more explanatory model, public opinion does not impact policy action directly.

Second, media does influence policy directly. In contrast to the three-equation model, Granger results indicate that policymakers are highly responsive to the media. They are, however, only responsive to photographic attention. The results in Table 4.2 unequivocally show that policy action is directly influenced by pictures not news stories or public opinion.

In terms of the research question, the four-equation model provides clear empirical evidence that the photographic agenda is both an important causal force in the dynamics of press, politics and policy and that its effects are unique and different from the print agenda. News stories significantly influence public opinion ($\chi^2 = 16.3396$, $p < 0.0012$) but do not appear to influence policymakers ($\chi^2 = 2.1011$, $p < 0.9102$). News

⁶² The test χ^2 statistic is based on likelihood ratio statistic $(T)(\log |\sum r| - |\sum u|)$

pictures, on the other hand influence both the public ($\chi^2=12.6973$, $p<0.0481$) and policymakers ($\chi^2=39.7372$, $p<0.0000$).

Aside from the specific effects on the policy agenda, the systemic dynamics are similar to the three-equation model. Print media is influenced by itself ($\chi^2 = 46.3629$, $p = 0.0000$) and public salience ($\chi^2=13.6457$, $p=0.0339$), but still remains unswayed by policy action ($\chi^2 = 7.8627$, $p = 0.2483$). Public opinion, as well, continues to be significantly influenced by all other endogenous variables, just as it was in the three-equation model.

Interestingly, the media-picture variable exhibits the least autocorrelation out of any of the endogenous variables ($\chi^2=16.1734$, $p= 0.0129$). Unlike the highly stable public opinion variable, which is greatly influenced by lagged values of itself ($\chi^2 = 273.2771$, $p=0.0000$), the media's photographic agenda appears to be more influenced by print media and nearly as influenced by policy as it is by itself. Also notice that the print-media variable is not driven by the picture-media variable. The photographic agenda is driven in part by news stories but the photographic agenda has no causal effect on the print agenda.

All of this indicates, as expected, that the photographic agenda is much less stable and consistent with event-based coverage. The fact that the media's photographic agenda is not Granger caused by shifts in public attention, like print media is, and moreover that it leads public opinion is further evidence that the photo agenda is more fleeting and more event based than the print agenda. These statistical results confirm what we observed just by looking at the time series trends.

Real world factors are largely influential in the way one would expect. The policy agenda is significantly caused by both economic and environmental factors. In the three-equation model, the real world environmental conditions did not appear to influence policy action. In this case, the addition of the media-picture variable has helped to crystallize the effects of real world environmental conditions on policymakers. Attention to the environment in print media is significantly driven by real world factors, but not by economic conditions. Public attention appears to be significantly influenced by real world environmental factors, but not by economic factors. This undermines the theory that people are only environmentally concerned when the economy is good.

Contrary to the media-print variable, the photographic agenda is not statistically influenced by shifts in real world environmental conditions. On first glance this appears to weaken the argument that the photographic agenda is more event-centered than the press agenda. When we remember that the real world environmental variables are yearly in scale, however, and that they are measures of broad environmental conditions (criteria pollutants, harvested hectares of trees and species depletion, for example) the findings actually offer support for the interpretation that the photo agenda is less thematic. While the Granger results do not prove that the photographic agenda is more causally dependent on events like oil spills, reactor accidents, chemical plant explosions or protests, they do indicate that the news media's photographic attention is less rooted in the long term environmental trends than is the print agenda.

Granger Causality and Research Question 1

The Granger results presented in Table 4.2 provide specific evidence of photographic salience on the public and policy agendas. In a system in which we control

Table 4.2: Causality in the Four Equation System

Variable				
Dependent	Independent	χ^2	p	df
Policy	Media-Print	2.1011	0.9102	6
	Public	8.1859	0.2248	6
	Media-Picture	39.7372	0.0000	6
	Policy	46.9541	0.0000	6
	Real World -Environment	64.2206	0.0588	48
	Real World -Economic	17.301	0.0082	6
	Budget	0.1677	0.9196	2
	Fiscal	8.9951	0.0294	3
Media-Print	Public	13.6457	0.0339	6
	Media-Picture	10.2268	0.1154	6
	Policy	7.8627	0.2483	6
	Media-Print	46.3629	0.0000	6
	Real World -Environment	100.09789	0.0000	48
	Real World -Economic	3.3311272	0.7663	6
Public	Media-Print	16.3396	0.012	6
	Policy	19.962	0.0028	6
	Media-Picture	12.6973	0.0481	6
	Public	273.2771	0.0000	6
	Real World -Environment	138.01821	0.0000	48
	Real World -Economic	6.2075918	0.4003	6
Media-Picture	Media-Print	21.853	0.0013	6
	Public	9.7475	0.1357	6
	Policy	15.2954	0.0181	6
	Media-Picture	16.1734	0.0129	6
	Real World -Environment	51.9753	0.3218	48
	Real World -Economic	13.5684	0.0348	6
Period	1969:7 - 1992:11			

for the causal effects of news stories, environmental pictures influence public concern toward the environment and have as strong impact on congressional committee action.

Block causality tests outlined above show us that the photographic agenda improves the model's overall ability to explain the dynamics of the system. Granger results outlined in Table 4.2 establish that photographs in addition to the other endogenous variables influence public concern about the environment ($\chi^2=12.6973$, $p = 0.0481$). Granger results also show that the new photographic variable has a significant impact on policy action ($\chi^2=39.7372$, $p < 0.0000$).

There is strong basis, in other words, from which to respond to the first research question with confidence that in addition to the accepted agenda-setting influence of news stories, photographs published in the news media influence public opinion and policy action.

Environmental photographs have an effect on the level of public concern towards environmental issues. Moreover, they have an effect on the number of committee meetings called by policymakers to deal with environmental concerns.

But what is the relative impact of each? Impulse response functions will give a clearer illustration of the impacts of each different agenda over time. Still the Granger results do offer us some indication. The findings show us that both news stories and photographs have some influence over public concerns. Only photographs, on the other hand, show evidence of influencing policymakers.

Photographs and Policymakers

In the three-equation model, public opinion significantly influences policy action. In the four equation model the principal endogenous influence on policymakers is the

photographic agenda. The strongly significant chi-square test statistic for the media-picture variable indicates that photographs drive policy action.

This finding offers a clarification of previous results. Media, as it turns out, influences policy decisions after all – and it does so in a way that is consistent with both the elite source and media agenda-setting hypotheses. News stories do not cause policy action. As I’ve argued, policymakers are unlikely to be causally influenced by what gets reported in news stories because they and other members of the policy elite are the principal sources for those stories. The words and ideas that are reported by the news organizations are, at least in terms of new information, are little more than what the sources have told the journalists. This is consistent with Cook’s (1998) contention that in the dance between journalists and their sources, it is the politicians that “dictate conditions and rules of access and designate certain events and issues as important by providing an arena for them” (p.89). Journalists take their lead from sources in terms of what is in general newsworthy, but then decide how to make it suitable.⁶³

In contrast to the print news agenda, where the policy network provides the information that the press reports on, photographs are a wildcard. Photographs do not conform to this informal dance that has long been choreographed between source and reporter. Unlike quotations, photos are (for the most part) out of the control of the elite sources. The evidence mustered so far presents a picture of a photographic agenda that is more a product of accidental news than it is elite-driven. Photographs of dead birds covered in oil, children killed by chemical spills, factories spewing toxic smoke, swaths

⁶³ This analysis may underplay the role of the journalist in this respect because the current study includes no measure for news prominence, which was unavailable for a number of years. As Cook (1998) writes, “journalists defer to official sources to cue them into important events and issues but are more inclined to reserve the power to decide whether something is interesting enough to run prominently in the news”(p.89).

cut through old growth forests and seeping toxic sludge sound an alarm to policymakers. The Granger results, in any case, support this hypothesis.

At least insofar as this model accurately captures the dynamics of the media-policy-public system, policymakers appear to be influenced by the relative attention of the photographic agenda. Photographs that appear in the news cause the policymakers to act in a way that the printed words do not. Policymakers do not react to news stories, presumably because they are largely in control of the words that get reported – or at least they restrict the range of ideas that make it into print. Pictures, however, appear to present them with a novel stimulus that they respond to by calling committee meetings.

In general, the four-equation model results further assist us in integrating the results with previous research. In the preceding system, where photographs were excluded, public opinion apparently influenced policy makers. Block exogeneity tests indicate that photographs are a statistically relevant endogenous variable. The system in short was underspecified. By adding photographs as an endogenous variable within the system, the movement of the other variables over time is better explained. What appeared to be causal influence of public opinion in the three-equation model is apparently better captured by news photographs in this more extensive model.

The four equation results are more consistent with research that claims legislators do not directly consider public opinion when making policy choices either because they do not have the time, do not have the money, or are reluctant to commit to an unfocused consensus (Herbst, 1998; Leogrande in Glynn et al. 1999). This of course raises the question about whether the policymakers are responding to pictures not because it

influences them directly, but solely out of the conviction that the pictures must have an effect on the public – the so-called third-person effect.

The data do, however, provide some basis to challenge the notion that the third person effect is at work exclusively. As the Granger results for the public opinion equation show, news photographs do indeed Granger cause public concern ($\chi^2=12.6973$, $p = 0.0481$). The public *does* react to photographic attention. The public reacts, but it reacts more slowly than the more attentive elites (Protess et al., 1991). If the policymakers are in fact responding in a way that is consistent with the third-person effect, then it appears to be consistent with the actual effects on the public.

Impulse Response Functions

Impulse response functions for the four-equation model give an even clearer picture of the effects that the media-picture variable have on policymakers and the public. With regard to the research question, impulse responses show us that photographs have a strong initial and comparatively lasting effect on the actions of policymakers. Pictures, moreover, have a persistent influence on public concern for the environment. Controlling for the effects of news stories, pictures do appear to induce the public to become more concerned about the environment and the policymakers to increase committee attention towards the issue.

Furthermore, impulse response functions present illustrative evidence that the dynamic effects of the print agenda on policymakers and the public are empirically discrete from the effects of the photographic agenda. As is shown by a comparison of the innovation effects in figures 4.7 and 4.10, people and policymakers respond differently to pictures than they do to stories. At least with regard to news about the environment, the

plots show us that photographs are a statistically significant causal force on public opinion and policy action and that their effects are evidently different than news stories.⁶⁴

Shock to Print Media

A single news story elicits a moderate and short term response in policy and picture agendas but instigates a long-term and statistically significant increase in public concern about the environment. The impulse response functions show that the policymakers and public do respond to published news stories in distinctly different patterns.

An impulse of one news story on the environment typically causes a rise in attention in both the policy and photographic agendas, although the response of the policymakers is statistically insignificant. In both cases, the rise in attention toward the environment is largely forgotten by the end of the fifth month. Policymakers it seems are just as likely to reduce as they are to increase committee action in response to an increase in news stories. The picture agenda is statistically responsive to the shock in the media-print variable but the response is quite moderate. With one additional story, we can typically expect the photographs to fractionally increase over the first four months.⁶⁵

Once more, the response of the public serves as a contraposition to the institutional agendas. Public opinion begins moderately uncertain in its initial response, but coalesces around the sixth month to become collectively more concerned about the

⁶⁴ Again, as in the three-equation model, the top panel presents the composite impulse response functions for the entire system in standard deviation units. The bottom three panels present the three predicted endogenous responses for the three other variables in the system. In the lower three panels, the impulse and responses are calculated and plotted in single-unit actual (non-standardized) values.

⁶⁵ News stories are not coded for valence and could present negative or positive news about the environment. As such, the statistical significance of policymaker response might be under estimated. Still, public response remains significant and this difference between policymakers and the public is the germane observation here.

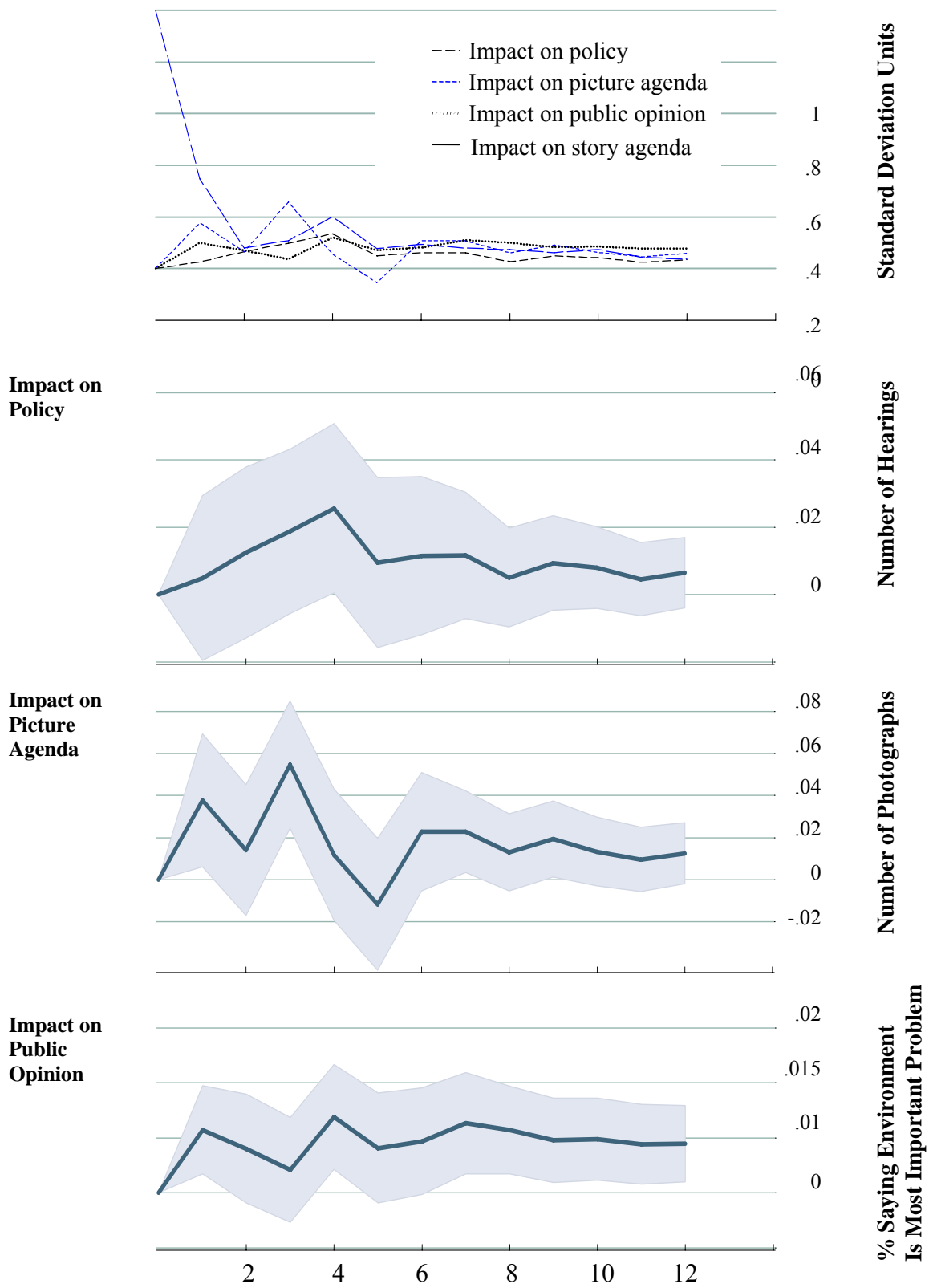


Figure 4.7: Impulse Response Functions – Shock to Story Agenda

environment and remains significantly more alarmed about environmental concerns one year after the shock.

Shock to Policy

A surge in policy attention is the action that creates the homeostatic response in the system. As policymakers become more active in addressing environmental concerns, the public becomes less concerned about environmental conditions. Policy action and public response to it appear to be the key negative feedback dynamic in the overall pattern of surge and decline.

As is illustrated in Figure 4.8, a policy innovation creates a wave-like or cyclical response from the other endogenous variables. The two media variables respond initially in concert with the policy variable by moving quickly upward then downward, then upward again. After three months the print media switches direction into negative territory and then recovers somewhat by the seventh month into a more fluid surge upward. The picture media variable responds similarly, but without the amplitude of the print variable. Both media variables appear to internalize the shock quickly by increasing coverage and then perhaps in the interests of “balance” or perhaps because other issues are always competing for limited attention, the news media appear to reduce attention back to original levels.

In response to single committee meeting, public concern for the environment is initially confused but by the third month declines significantly. The public response is wavelike as well. Even at the end of the 12-month period, public opinion looks as if it will continue to adjust and readjust to a single policy meeting.

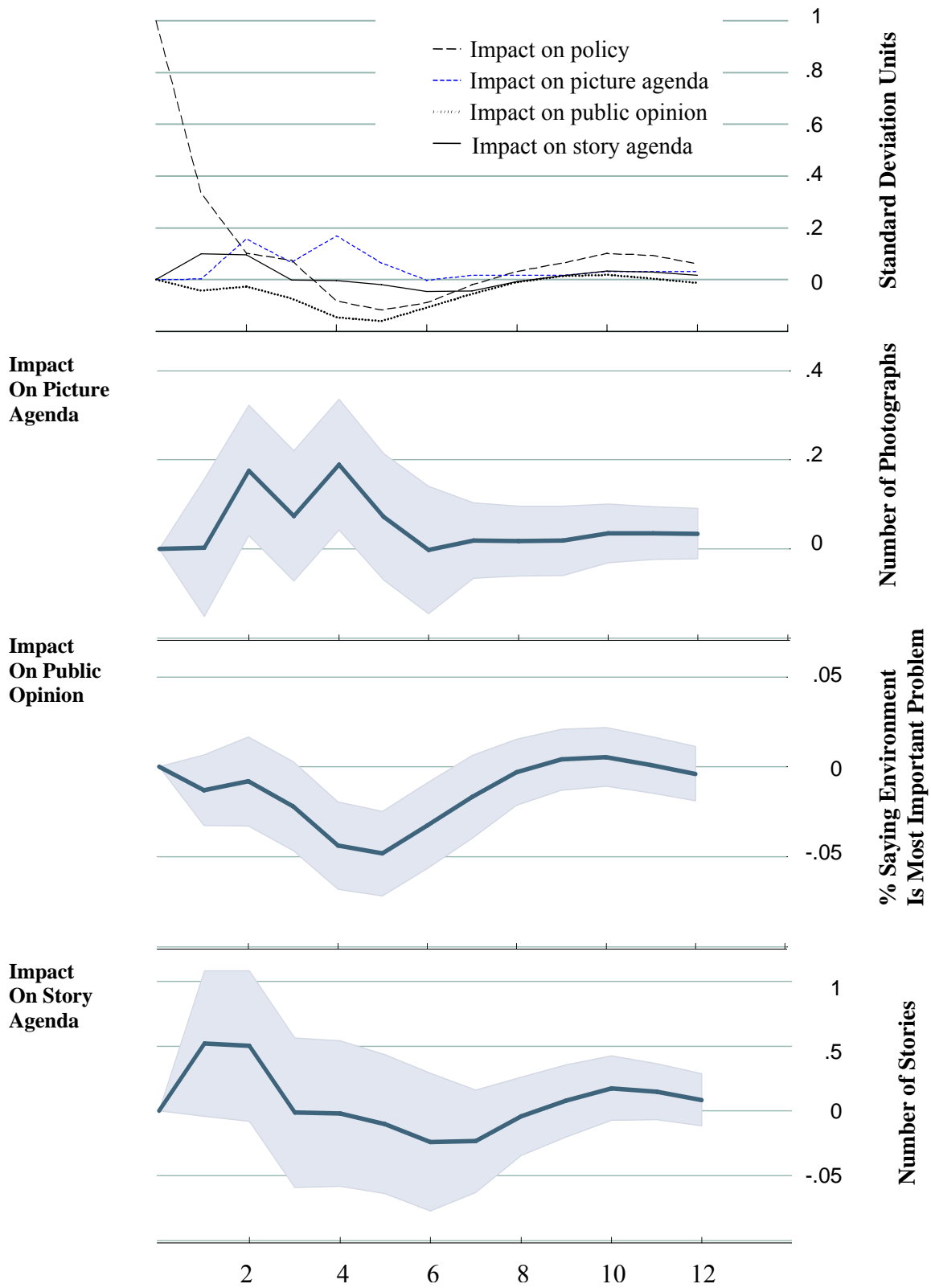


Figure 4.8: Impulse Response Functions – Shock to Policy

What appears to be happening here is that policy concern inspires public moderation. Public concern for the environment diminishes around two or three months after it registers the committee attention. This may help to create the systemic re-adjustment that is apparent in this systemic shock. Lowered public concern might induce the news media to reduce its print coverage of the environment and eventually its photographic coverage as well. Policy attention falls quickly after the shock and four months after the impulse. Policy makers themselves are paying less attention to the environment than they were before the surge. In response to the diminished attention by congressional committees, aggregate public concern over the environment begins to creep upward again. The net result is that policy leads public opinion and media coverage in an oscillating pattern of concern and relaxation.

The public's negative response to policy action is an empirical illustration of the public working like a thermostat for public policy. Media act as reactive intermediaries and in turn have variable effects on the other endogenous variables. Print has a strong influence on the public and photographs appear to guide the policymakers. By creating negative feedback to both inspire and moderate the effects of policymakers, the public is operating as some democratic theorists would hope.

The public may not be directly driving the policy decisions – remember there is no direct impact of public opinion on policy action, but the negative response to policy action could manifest itself indirectly in the system – through the print-media agenda, for example – and acts as a constraint on the actions of policymakers.

Shock to Public Opinion

An impulse in public concern results in a quick and short-term spike in attention in the media variables and to a lesser extent the policy variable. Unlike the three-equation model, public opinion does not influence policymakers. Our understanding of the dynamics of the system is altered, therefore, in an important way. Media, not public opinion becomes the connection between policy action and public opinion.

Following a surge in public concern, the press intensifies its coverage of the environment – both in terms of photographs and stories. The media's response does not reflect a sustained interest. It appears that after two months of increased coverage, the media loses interest in the environment again and after four months (for pictures) or five months (for stories) the media coverage returns to normal. Four to five months after the shock, the impact of raised public anxiety on both print and picture coverage of the environment is indistinguishable from zero.

As is indicated in the Granger numbers, when we expand the model to include a photography variable, policy attention is no longer directly influenced by public opinion. The impulse response functions are consistent with the Granger results. The magnitude of policy response to a single-unit shock in public opinion is cut in half. Further, the confidence bands, which appeared above the no impact line for most of the first four months in the three-equation model, straddle it in the four-equation model.

Overall, this confirms the key findings of the Granger tests. A single percent increase in public opinion inspires sharp and short-term responses from the media variables. We would typically expect a rise in public concern on the environment to cause a moderate increase in photographs of environmental issues and a larger increase in

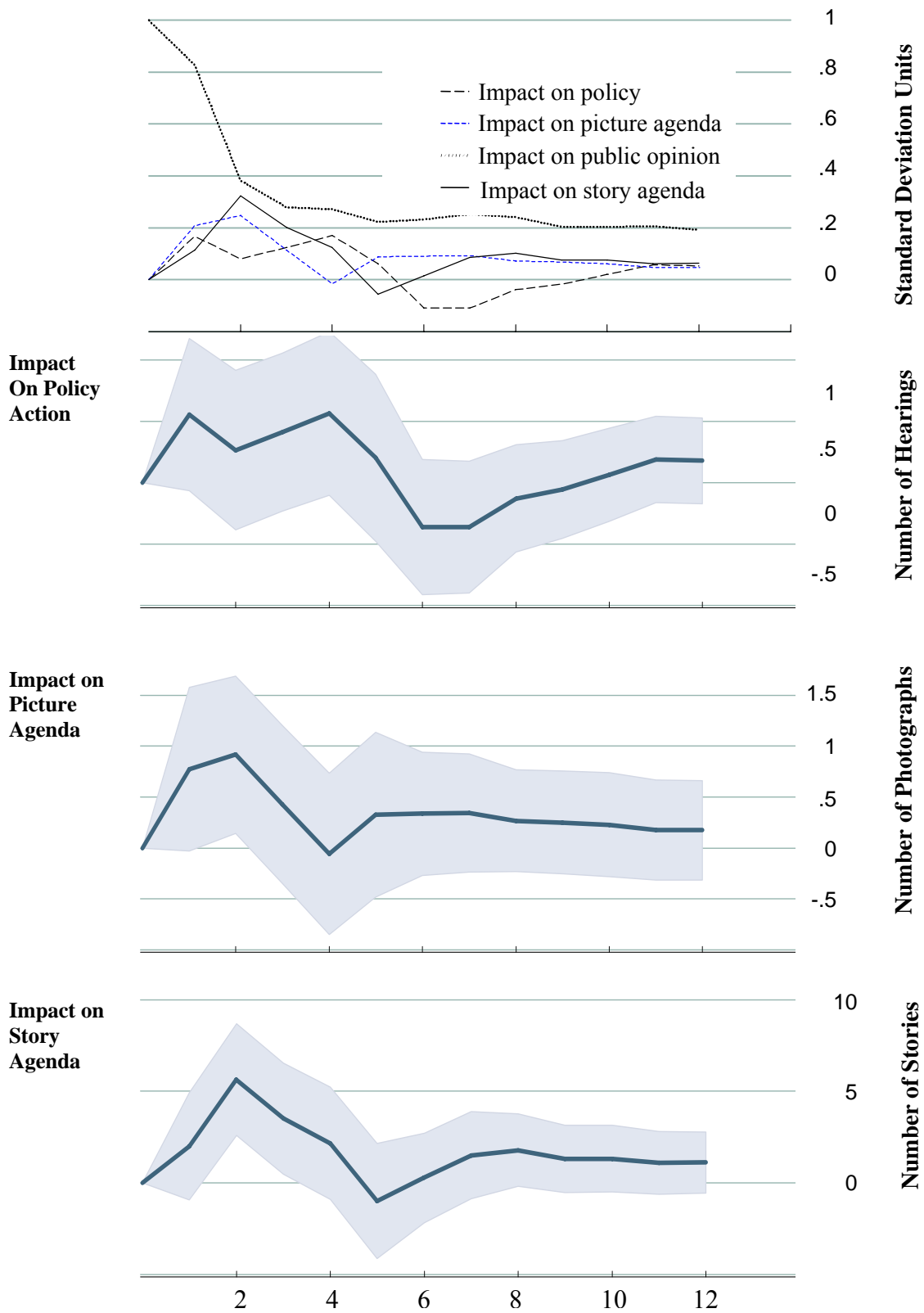


Figure 4.9: Impulse Response Functions – Shock to Public Opinion

stories for four or five months. Policy makers are not similarly influenced, however. We could not say with statistical confidence whether public concern towards the environment causes politicians to increase or decrease committee attention to the subject or has any impact at all.

Shock to Picture Media

The impulse response functions for a shock to the picture media variable show that news photographs and news stories elicit empirically different responses from both the public and the policymakers. Like news stories, pictures inspire a significant and lasting increase in public concern for the environment. The variation in the public's response to pictures is much greater than is its response to news stories. But whereas pictures typically cause a stronger response, stories inspire a more consistent and dependably significant response from the public. When it comes to policy action, pictures drive a stronger and more dependable response than do news stories.

Just like the media print variable, an impulse to the media picture variable causes a persistent effect on the system of endogenous variables. Environmental pictures inspire an increase in both public concern and policy attention that is still significant an entire year after the photograph is published.

The typical response to a published photograph – by both legislators and the public – is stronger than a published news story. In terms of significant effects, we can see that pictures have a long-term consequence on policymakers, while stories do little, if anything. Pictures immediately and clearly raise legislators' attention to the environment. They also significantly influence the public, but the results take a while to become manifest.

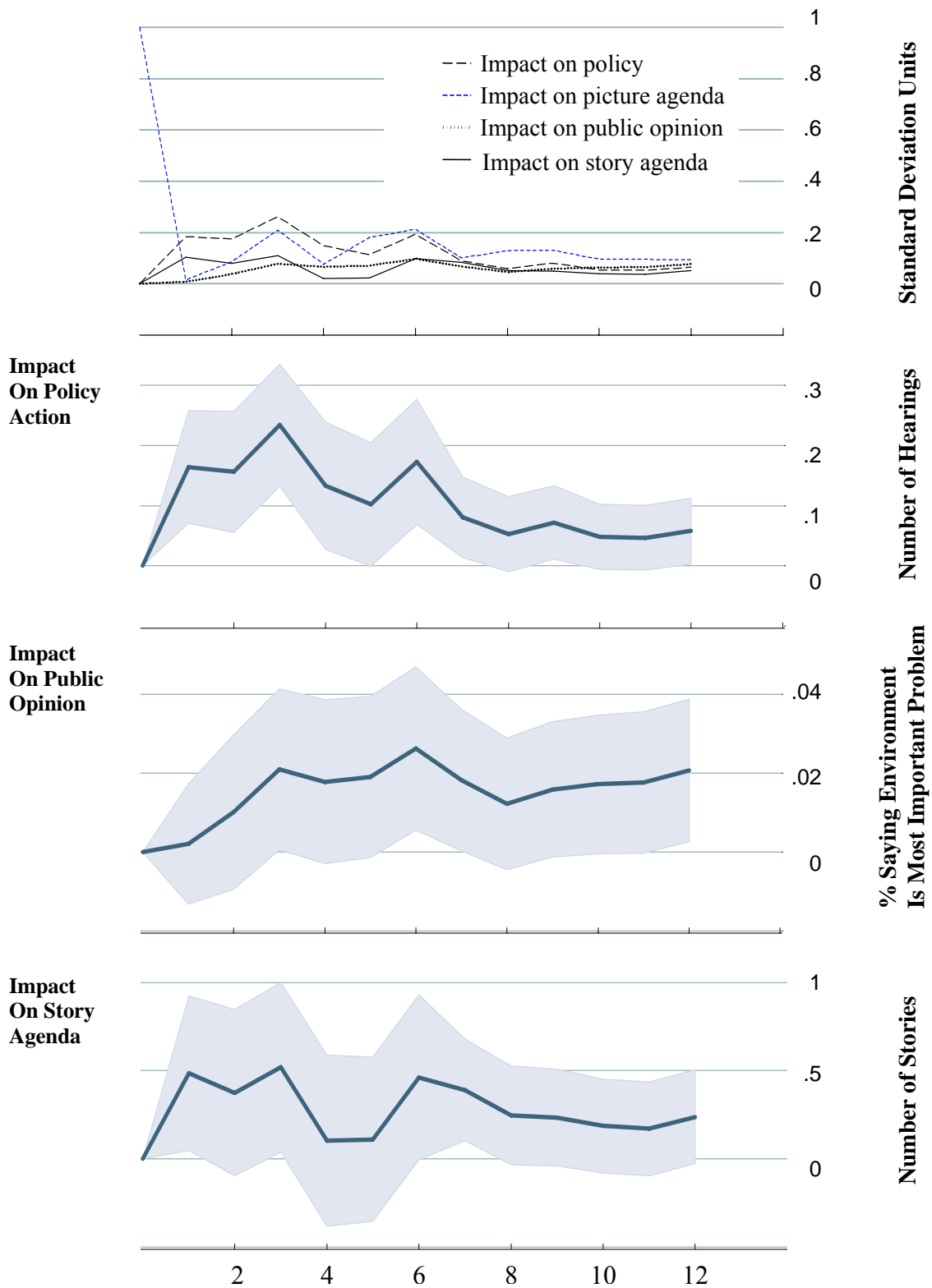


Figure 4.10: Impulse Response Functions – Shock to Picture Agenda

Public and elite response to environmental pictures is also much more variable than it is to news stories. Compare the impulse response functions in Figure 4.10 with Figure 4.7. The possible effects on public opinion and policy display a much wider range of response. The confidence intervals for both policy and public opinion response to an impulse in the news stories are much narrower. Pictures inspire a stronger but less dependable response over time.

Whereas the public is comparatively more resolute in its response to stories, policymakers appear to be more invariable in their response to photographs. Contrasting policymakers' responses to impulses in stories and pictures, one observes evident differences in magnitude and relative variation. Confidence intervals in Figures 4.10 and 4.7 show that policymakers respond immediately and without much variation to a published picture. In response to a story, the typical response is just one-tenth as strong and considerably more varied.

Both the delayed response and the wide confidence intervals for a picture innovation could be the result of interpretive variation. As Messaris argues, photographs are, unlike text, syntactically indeterminate. In contrast to a print story, where the meaning is obvious, the photograph might not have any meaning associated with it until some sort of interpretive consensus emerges.⁶⁶ The results do conform to the argument that a photograph's meaning is more dependent on cultural and political climate. It takes a while for a consensus to build one way or the other on the shared meaning of the photograph.

⁶⁶ The initial confused response by the public could in part be due to feedback from the immediate increase in policy action. As we observed earlier, the public responds to policy action negatively in a strong and significant way. In effect the quick response by policy makers is in part dampening public response.

The comparatively more certain response of the policy elites encourages this interpretation. In addition to the possible third-person effects already noted, one would expect that pictures would be more readily interpretable to the policymakers because they have the necessary context from which to make sense of the images. The issue may not be salient enough amongst the public, so the image makes no impact on the public as a collective.⁶⁷

Perhaps the best way to explain this is by example. Consider a picture that depicts a technique of overfishing: a photograph of a fisherman pulling in a driftnet. Unless overfishing is already a salient issue for the broad public, the photograph of a driftnet will be meaningless as a widespread semantic cue for overfishing; there is little reason to expect that the collective public will interpret the photograph of the net and snared fish as a signifier of environmental devastation. Some segments of the public might become more concerned about the environment after seeing the images, but together as an aggregate, there would be no coherent or focused response. Without being broadly informed about the practice, viewers of the photo would not know that driftnets are over a mile long, indiscriminately destroy sea life and have wiped out entire stocks of fish. The result is that the public – as an aggregate – would not become more concerned about the environment. The photograph is neither syntactically determinate nor will it signify concepts to a public if those concepts aren't already there or salient. Simply put, there

⁶⁷ The measure of photographs is, as discussed earlier, very rudimentary. The content of the pictures do vary greatly. What is classified as an environmental image could be nothing more than a portrait of a prominent person engaged in some environmental event (Lady Bird Johnson dedicating a national park, for example) or it could be a picture of a toxic-chemical scarred wasteland. Furthermore, the image itself could present positive as well as negative image of environmental issues. This would certainly explain a varied response in the public. The fact that policy action is so positively certain, however, undermines this hypothesis somewhat. Most likely the delayed response of the public is a complex interaction of interpretation, photographic content and dynamic feedback in the system.

may be not enough generally-held knowledge about the practice for the picture to be meaningful for most of the public. Later, if the issue becomes salient, any image of a driftnet becomes associated with the idea of overfishing and public concern eventually rises.

Policymakers involved with environmental legislation, on the other hand, will be much more aware and consequently sensitive to any images that portray environmental destruction. A published photograph of a driftnet will have meaning for them immediately. The photograph will instantly signify overfishing and thus they will respond to it as such. Obviously, the data do not allow for us to resolve this question, but it is worth posing.

Impulse Response Functions and Research Question 1

My first research question asks to what extent the different modalities of news media content have an effect on the salience of environmental concerns in the public and committee action in congress. The evidence presented in this chapter provides strong indication that news stories and news photographs do have an effect on policy action and public concern but that they do it in quite different ways. The impulse response functions show that photographs cause an increase in committee action and an increase in public concern. Stories increase public anxiety about the environment, but they have no significant effect on the policymakers. Moreover, as the impulse response functions demonstrate, the effects of both news photographs and news stories are not only significant but they are more lasting than the other endogenous variables in the model.

It has long been accepted in the agenda setting and public opinion literature that news stories have some impact on public concerns (Zaller, 1992). Political scientists have

also maintained that news stories influence the policy agenda (Edwards and Wood, 1999; Rogers and Dearing, 1994; Soroka, 2002; but *cf.* Kingdon, 1995). This research contributes to that research by providing empirical evidence that news pictures, as well, have a causal impact on the public and policy agendas. What's more, this research shows that the effects of these different agendas are evidently discrete. Pictures and stories influence policymakers differently. The relative strength, variance and patterns of the pictorial influence are markedly different from that of the news story.

While policymakers appear to be more certain in their response to images, the public seems to be more certain in its response to the printed articles. Narrow confidence intervals for the public's response to a single news story illustrate certainty. Narrow confidence intervals for policymakers' response to photographs suggest certainty on their part as well. The public is much less certain about a published image. Confidence intervals are broader and for the most part borderline insignificant. The first time that the public exhibits a significant response is in the fifth month. Likewise, policymakers display what appears to be total ambivalence towards published news stories.

Public, Policymakers, Stories and Photographs

Cross-equation tests provide evidence that the inclusion of a measure of news photographs as a new endogenous variable into the three-equation model improves the causal prediction of the system. Granger causality tests confirm that the news media's photographic agenda is a significant causal predictor of environmental salience in the public and especially of the action taken by policymakers.

The results consistently show that the public concern for the environment is influenced by the news story agenda and, in a more moderate way, the photographic

agenda. Both the three and four-equation models confirm this pattern of influence. Even the smallest increase in environmental stories or pictures significantly Granger-cause an increase in public concern for the environment. Both models show that news stories have a more significant causal effect on the public than do news photographs.

When we look at causal effects on policymakers, however, we see that news stories fail to have any impact on committee action whatsoever. News pictures, on the other hand, appear to be one of the strongest causal predictors of policy action in both the three and four-equation systems. Pictures, it appears, have the effect of spurring lawmakers into action; news stories do not.

The results challenge some of the key assumptions of the signaling model at the same time that they confirm some of the dynamics proposed by it. There is clear evidence that the public is indeed influenced by mediated images and text. Public opinion towards the environment is not exogenous to the press-policymaking process as Kollman asserts. Each of the three models examined here illustrate that the public is moved significantly by shifts in the news media's photographic and print agendas. While the interests are absent in this analysis, the findings here suggest that even if members of an interest group manage to initiate even a single news story, the public will become significantly more concerned about the environment.

The findings also lend weight to some of Kollman's contentions about how interests are able to directly communicate to policymakers. The data analyzed here suggest that if interest groups can initiate just one photograph in the news they will be able to have a significant influence on policy action. There is direct communication, or at least there is the possibility of it, between the interest groups and policymakers.

But, while Kollman theorizes that outside lobbying works because it communicates accurately the preferences and true levels of salience held by the public, the dynamics observed here suggest otherwise. In Kollman's words, policymakers respond to "sincere expressions of constituents' concerns" (p.77). The findings suggest that to the contrary, the policymakers may be responding to a public that is pliable, rather than resolute. The Granger tests below show that the public is significantly influenced by all endogenous variables in the system. The impulse response functions show that the aggregate public response to systemic shocks is both uncertain but significant. The public is mobilized or demobilized by photographs, print stories and policy action. If there is a latent and resolute quality to aggregate public opinion, it is not apparent in the empirical evidence examined here.

Signaling and Public Lobbying

So far, the data I have analyzed does not address the signaling and framing theories directly, but it does shed some light on some of their assumptions. Evidence does suggest that the media is indeed acting as a conduit between public opinion to the policymakers, consistent with the expectations of the signaling model. On the other hand, contrary to assumptions in the signaling model, evidence also suggests that the public is not as fixed or exogenous to the dynamics of the system.⁶⁸

Policymakers do not respond directly to public concern. Instead, policy action is driven entirely by the media and real-world variation. Table 4.2 shows us this. Whether policymakers rely on photographs as a type of proxy for public opinion salience as

⁶⁸ While Kollman does allow for public salience to be influenced by the media, he also conceives signaling as a process that works when public opinion is exogenous to the system (Kollman, 1999, p.10). According to the theory, public lobbying as signaling is at work when interest groups are able to communicate this "fixed" public opinion to lawmakers.

Leogrande suggests (in Glynn et al., 1999, p.12) and Herbst (1998) observes, it is hard to say. In any case, as Table 4.2 shows, committees are entirely driven by the photographic agenda.

While Policymaker responsiveness to photographs in the news may be motivated by a concern for the mobilizing effects they may have on the public, we aren't observing a third-person effect exclusively. However moderate, the aggregate public does become more concerned about the environment following the publication of environmental photographs. The response is more diffuse, but it is observable.

In fact, public concern for the environment is statistically driven by all the other endogenous variables in the system. The Granger results in Table 4.2 and 4.1 show that the public is sensitive to movements in every agenda. The impulse response functions illustrate that the shifts may not be huge, but they are significant and persist over time. This is especially true in the public's response to the media variables, where a significant increase in public concern for the environment is still observable one full year after the publication of a single photograph or story.

Signaling theory maintains that public opinion is resolute on the issues and it is the mediated messages that indicate public preference that will move legislators one way or the other. The evidence presented in Table 4.2 and in Figures 4.7 and 4.10 illustrate that the salience of the environmental issue as conceived by the public is influenced by real-world factors, but more importantly and more significantly it is caused by print and photographic media portrayals of the environment. The signaling model –as outlined by Kollman – envisions a pattern of political communication whereby interest groups communicate *true* and fixed public concern to policymakers. At least as it relates to

salience, the data gathered here question the hypothesis of a true level public concern. Public concern is after all forever fluctuating and it is fluctuating in response to both pictures and stories published in the news media.

Still, there is little here that undercuts the signaling hypothesis directly. First, signaling theory does allow that the salience of an issue can be manipulated through the mass media. Evidence presented thus far is limited to precisely this. Granger tests and impulse response functions provide an empirical confirmation that news content – both photographs and news stories – do have an impact on the salience of environmental concerns for the public.

Extending the Analysis: Public Lobbying and the Industrial Advertising Agenda

The dynamic modeling of the variables described above – *print media*, *photographic*, *public* and *policy* agendas – have provided evidence about how the media, public and policymakers influence one another over time. Including all of the variables in a single system has allowed me to statistically infer how environmental photographs and stories are influencing public opinion and public policy action. It has moreover allowed me to control for the effects of each of the agendas while testing the other.

Modeling these four agendas in one system has allowed me to answer my first research question. It also indicates how political interests might engage in public lobbying efforts to achieve their policy goals indirectly. But the four equation system does not address interest group efforts directly. They are quite literally left out of the equation. Any conclusions about how interest groups efforts at public lobbying would be largely speculative.

One way to get a handle on this is to extend the analysis to include another endogenous variable that captures these public lobbying efforts. I will therefore model a five-equation system that includes one specific measure of public lobbying efforts—advertisements by industrial interests. Industry-sponsored advertisements are just one particular type of public lobbying effort, but using them as a measure suits my purposes particularly well. First, they represent the most apparent form of advertising related to the environment. Environmental and government-sponsored advertisements (Smoky the Bear, for example), which speak for increased regulation on or heightened concern for the environment, represent a substantially smaller number of advertisements over the same time period. Second, the industry sponsored advertisements represent to varying degrees the same sort of greenwashing effort as undertaken by General Electric to stop the EPA from forcing the company to dredge the Hudson River. Although the advertisements may not have a similarly specific policy objective, every one is part of an effort to present their company's or industry's efforts as being concerned and protective of the environment. Their specific objective is what in part being empirically examined here, but we are making the assumption that the effort is in part either to assuage public concern towards the company's impact on the environment or diminish governmental regulatory interest or both. Looking at the use of these advertisements over time as part of the system of media, public opinion and policy action, therefore, presents a macro-analytic or aggregate means by which we can empirically test how greenwashing works as a public lobbying effort and to do so over and above the other media effects. Integrating this variable into the system will allow for some inference about whether

greenwashing is systematically used in a similar way to which the General Electric example suggests.

The measure itself is a count of photographs used by industrial efforts in specifically environmental or greenwashing advertisements. In line with the other photographic variable, I have conducted a straight count of the public lobbying photographs that appeared in *Time* magazine between 1969 and 1992. (See Appendix H for a detailed discussion.)

Obviously, this variable is not completely parallel to the editorial measures examined earlier. I'm not sure that in an aggregate-level analysis there would be a basis from which to separate the two effects. A public lobbying advertising, after all, is much more of a unified communication than is a news story with photographs. In the editorial content, theory suggested that there were different agendas – photographic and textual. That is not the case here. Even though there were text ads without photographs (in limited quantities) there were no photographic advertisements without text. Further, unlike the editorial content, public lobbying efforts are singular in purpose and structure. The text and photographs are composed to work together. Inferring individual effects of the visual or textual on an aggregate public or the collective actions of congressional committees would be tenuous.

This is not to suggest that separate pictorial and textual effects do not exist in advertising (Dyck and Coldevin, 1992; Sherr, 1999; Hollbrooke and Moore, 1981; Babin and Bums, 1997; Nabi, 1998; Scott, 1994). The measure used in this study is indeed a measure of a photographic influence and it is a slight weakness of the study that I do not include a separate text measure. It is a weakness because I do not control for textual

effects and because I do not count advertisements that do not have photographs. Mobil Oil's advertorial series in which the company offers an editorial-like essay on a topical subject (sometimes but not always environmental) is an excellent example of the type of advertisement excluded from the study. In my defense, however, I contend that this sort of analysis and inference of effects is much better left to control provided by experimental manipulation. I will take this up in the next chapter.

My intent with creating this variable was not to duplicate the test of modal effects I examined in the editorial content, but rather to provide an empirical basis from which to examine whether the editorial influences translate to the domain of explicit public lobbying. The purpose here is to find out if industry-sponsored advertisements engage in strategic efforts to influence public opinion (contrary to the signaling hypothesis) and do (or do not) influence the public and the policy makers in the way that is indicated by the four-equation model.

The five equation model, in short, will provide an aggregate-level account of the effects of one type of greenwashing effort (advertisements) on public concern for and policy action towards the environment. If I were to stop at the four-equation model, I could make the argument that political interests compete through the news media to *indirectly* attempt to construct public problems. Extending the system to include a measure for public lobbying will test the causal effects on public concern and policy action on their *direct* efforts to construct and re-define public problems.

Five-Equation Model: Granger Causality

Prior to examining the causal dynamics of the five-equation system, I conducted a block exogeneity test to determine whether the additional variable should be included in

the model. Test scores ($\chi^2=41.7100$, $df=24$, $p=0.0139$) indicate that the picture-advertisement variable adds explanatory power and should be included into a model of the system.

Granger results for the five-equation system are presented in Table 4.3. The results illustrate first of all that the inclusion of the visual greenwashing agenda into the model (*picture advertisement*) does not change the dynamics of the system. Policy is still significantly influenced by itself and the media picture variables. Print media is driven by public opinion and itself. Public opinion is driven by all other endogenous variables. The media picture variable is significantly Granger caused by the policy and print variables and it has a marginally significant influence on itself.

When we focus on the effects of the new picture advertisement variable, the Granger tests show that the greenwashing advertisements are having a strongly significant causal effect on policymakers and a moderately significant effect on public concern, even once we control for the systemic effects of all the other variables. Remember that Granger tests only provide a test of causal impact; they say nothing about the direction of that impact.

What is striking about these results is how similar the effects of the new photographic agenda (picture-advertisement) are to the editorial one (picture-media). Both photographic agendas appear to influence the policymakers and public in similar ways. Even though we can't control for the causal effects of advertisement text the same way we are controlling for the editorial text agenda, the results clearly indicate that the public lobbying images are having a similar causal effect on public concern for the environment and congressional committee action. Keep in mind that we are controlling

Table 4.3: Causality in the Five Equation System

Variable				
Dependent	Independent	χ^2	p	df
Policy	Media-Picture	38.0291	0.0000	6
	Media-Print	4.4274	0.6190	6
	Public	7.059	0.3154	6
	Advert-Picture	20.0819	0.0027	6
	Policy	47.15617	0.0000	6
Media-Picture	Policy	11.74	0.0680	6
	Media-Print	19.3687	0.0036	6
	Public	9.8948	0.1292	6
	Advert-Picture	6.5346	0.3660	6
	Media-Picture	14.8427	0.0215	6
Media-Print	Policy	7.9999	0.2381	6
	Media-Picture	9.5699	0.1440	6
	Public	14.3852	0.0256	6
	Advert-Picture	5.7176	0.4556	6
	Media-Print	47.52015	0.0000	6
Public	Policy	20.6782	0.0021	6
	Media-Picture	13.7396	0.0327	6
	Media-Print	17.399	0.0079	6
	Advert-Picture	11.9909	0.0622	6
	Public	279.0668	0.0000	6
Advert-Picture	Policy	5.0737	0.5344	6
	Media-Picture	7.5473	0.2732	6
	Media-Print	16.4073	0.0117	6
	Public	29.2139	0.0001	6
	Advert-Picture	40.25221	0.0000	6
Period	1969:7 - 1992:11			

for the effects of real world events, and two news agendas. We can be fairly confident that the effects that we are observing are the result of lobbying efforts and not what's happening in the news.

As independent variables in this system, the advertising and editorial photographic agendas display a distinctly similar pattern of influence. Photographs that appear in the media appear to impact policymakers and the public in nearly identical ways, regardless of whether they appear as editorial pictures or as advertising pictures. While editorial photographs tend to be more robust in their influence, advertising photographs still have a significant impact on both policy action (and to a lesser extent) public opinion.

This is an aggregate response we are observing. An aggregate is important as a unit in itself, but it is also a collective of individuals and more importantly a collection of groups. As a collective, the public may not exhibit a strong causal response to images for two principal reasons – at least as it concerns us here. The moderate response may be reflective of widespread and consistent moderate response within the collective or it may be the aggregate result of contrasting responses within the collective. The aggregate may exhibit moderate response, in other words, when one group is responding strongly positive and the other is responding strongly negative. The aggregate response amounts to a collective average. How exactly people or groups of people are responding is not clear – the data only reflects the collective response.

As dependent variables, however, the two agendas are evidently reacting to different dynamics. The differences are illuminating. News photographs display a strong

causal response to the print media variable and to a lesser extent the policy action variable. Public lobbying photographs respond keenly to print media and public opinion.

From these results, we can infer that the two photographic agendas captured here have the same influence (on public policy makers and on the public) but that they are themselves responding to distinctly different pressures. Although both photographic agendas respond to the print media agenda, they appear to be sensitive to different aspects of the print media, given their sensitivity to other variables.

News pictures react to the news agenda and the policy agenda. They are driven by events – by what the policymakers are doing and by the attention of the press. Public lobbying photographs, on the other hand, react to the salience of public concerns and to the pattern of print news coverage. The pictures in this case exhibit more of a focused response to the salience of public concerns toward the environment.

Signaling and Framing and the Five-Equation Model

There is nothing surprising in the way the two photographic agendas respond to the other systemic variables. What is worth pointing out here, however, is that the Granger findings paint a picture of a roughly cyclical pattern of environmental problem definition and redefinition that takes place through the media with policymakers and the public on opposite ends.

In response to pictures that appear in the media, both news and advertising, policymakers call congressional meetings. Congressional committees do not respond directly to public opinion nor do they respond to the news stories. Policymakers react to the photographs that the news media and industrial interests publish. Both types of photographs – those published by industrial interests and the news media – appear to

have an equal impact on the policymakers. For whatever reason policymakers are responding to news photographs, they appear to react to pictures in advertising in the same manner that they react to editorial pictures. Again, public opinion is buffeted by all endogenous variables.

The findings again produce mixed evidence for the signaling model. While on the one hand the Granger tests provide empirical evidence that the interest groups are actually engaged in an active (and what appears to be ongoing) campaign to influence the policymakers and public they also show us that the campaigns are directly more effective with the policymakers than they are with the public. Whether they intend to or not, the interests are using the advertisements to signal to the policymakers.

The industrial interests are directly influencing the policymakers, just as the signaling theory postulates. Moreover, it also appears, consistent with signaling theory, that the interests are positioned dynamically between the public and the policymakers. Without knowing the valence of the responses, however, it is difficult to determine just what it is the interests are signaling. Are they signaling the fixed and true opinions of the public or is it something different? The findings above cast doubt on the notion that public concern for the environment is in any way fixed, but they tell us nothing about what it is the interests are signaling.

Impulse Response Functions

I will not present the full battery of impulse-response possibilities as I have done in my analysis of the previous two systems. The relationships are largely the same as in the prior model. Instead I will focus on the specific effects of the new variable on all the other endogenous variables. I will then discuss the causal impact of the two endogenous

variables that Granger tests indicate have a significant influence on the picture-advertisement variable. Figure 4.11 charts the twelve-month impulse response effects of a one point surge in picture-advertisement on the other variables. Figure 4.12 illustrates the influence of print-media and public opinion on the public lobbying agenda.

The first set of graphs provides some interesting context to the Granger test numbers. Overall, the first panel, which shows the standardized shock and responses, reveals a set of systemic reactions that are very different from any previous set of impulse response functions. In response to a one-point impulse to the advertisement picture variable, the other variables react negatively. Unlike previous systems where a one-point surge in any variable has resulted in a positive response from the other endogenous variables, the effect of an advertising image is to diminish the overall salience of the environment.

The second panel on the first page of Figure 4.11 gives the clearest picture of this negative relationship. It shows that an impulse to the advertising picture variable causes the policy action variable to decline significantly from month two to four and again after the tenth month. It appears that an increase of photographic lobbying efforts drives a sharp and prolonged reduction in committee attention towards the environment. If we look back at Figure 4.10, we can see that the policymakers' collective response to an advertising picture is the reverse of its response to an environmental picture in the news.

Advertising images appear, it would seem, to be having the effect on policy action that the industrial interests would want – at least as the advertisements are conceived of as greenwashing. Just one public lobbying image causes a significant drop in the legislative actions of environmental committees.

The third panel of Figure 4.11 presents some more interesting results. The granger tests indicate that public concern for the environment is significantly directed by the advertising agenda. The impulse response plots show that that influence doesn't necessarily translate to a cohesive positive or negative response. What is happening here, apparently, is that the direct effects of the advertising impulse are being washed out by the other indirect and systemic effects over time. While the public may in fact be causally driven by images that appear in greenwashing advertisements, their collective response manifests itself as one that is largely or at least functionally ambivalent. Both the hither-thither tracking of the response estimate and the (comparatively) wide confidence interval speak to this. Taking both Granger tests and impulse response functions into account, we can only infer that though the aggregate public is significantly driven by the public lobbying agenda, the result is more confusion than anything else.

The aggregate response of the public is both erratic and stable. Because public opinion is so sensitive to the impacts of all of the other variables in the system a shock to the advertising agenda results in a multitude of forces that pull public opinion in all directions. Aggregate public opinion as a result does not appear to go decisively in any one direction and is therefore stable over the long run. These results conform to public opinion research that maintains public opinion – as an aggregate – moves only gradually over time (Page and Shapiro, 1992; Erickson et al., 2002). Yet it also provides us with a picture of the highly responsive nature of aggregate public opinion and the homeostatic quality of its stability (Baumgartner and Jones, 1991; Baumgartner and Jones, 1993; Jones, 1994).

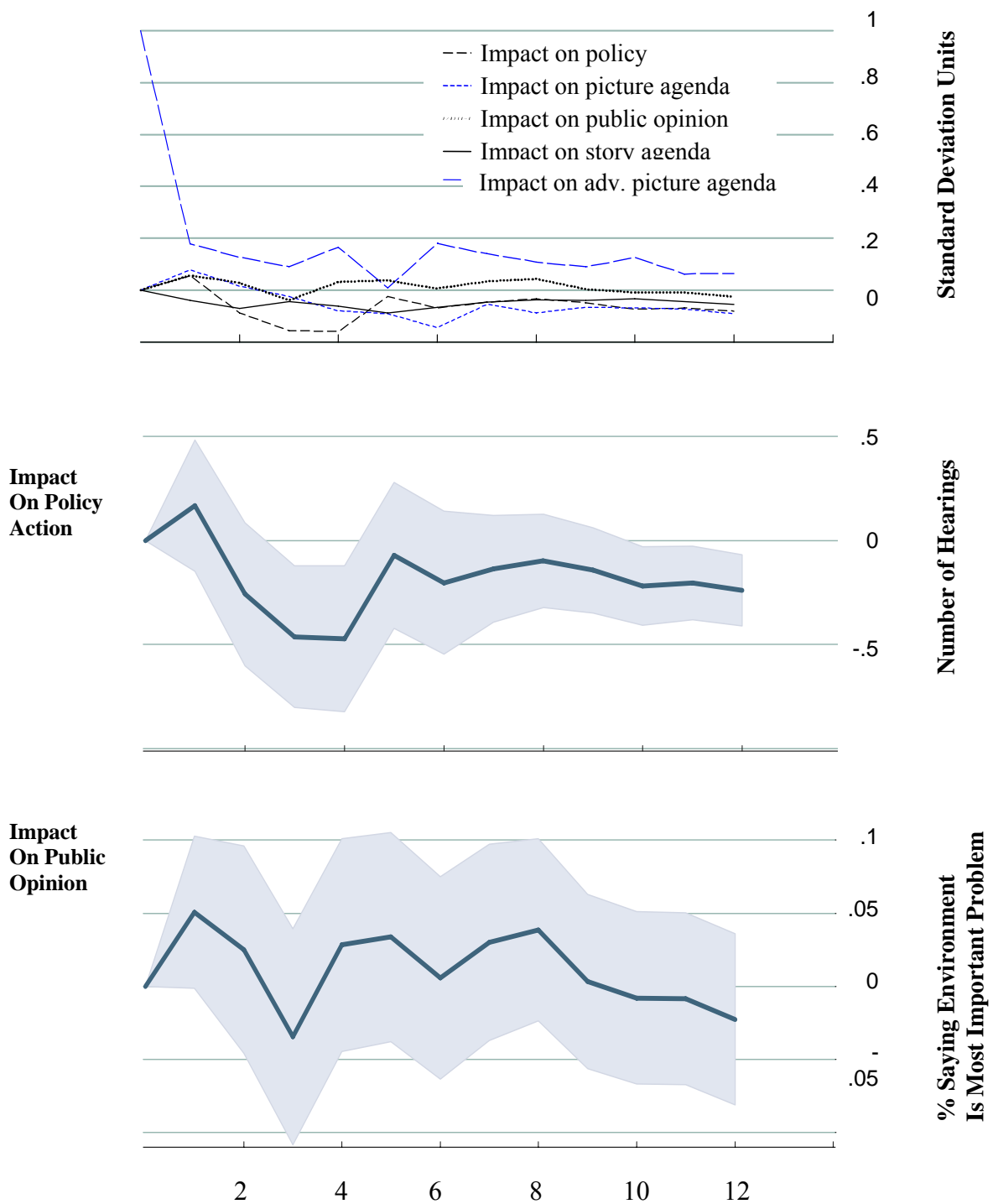


Figure 4.11: Impulse Response Functions – Shock to Advertising Picture Agenda

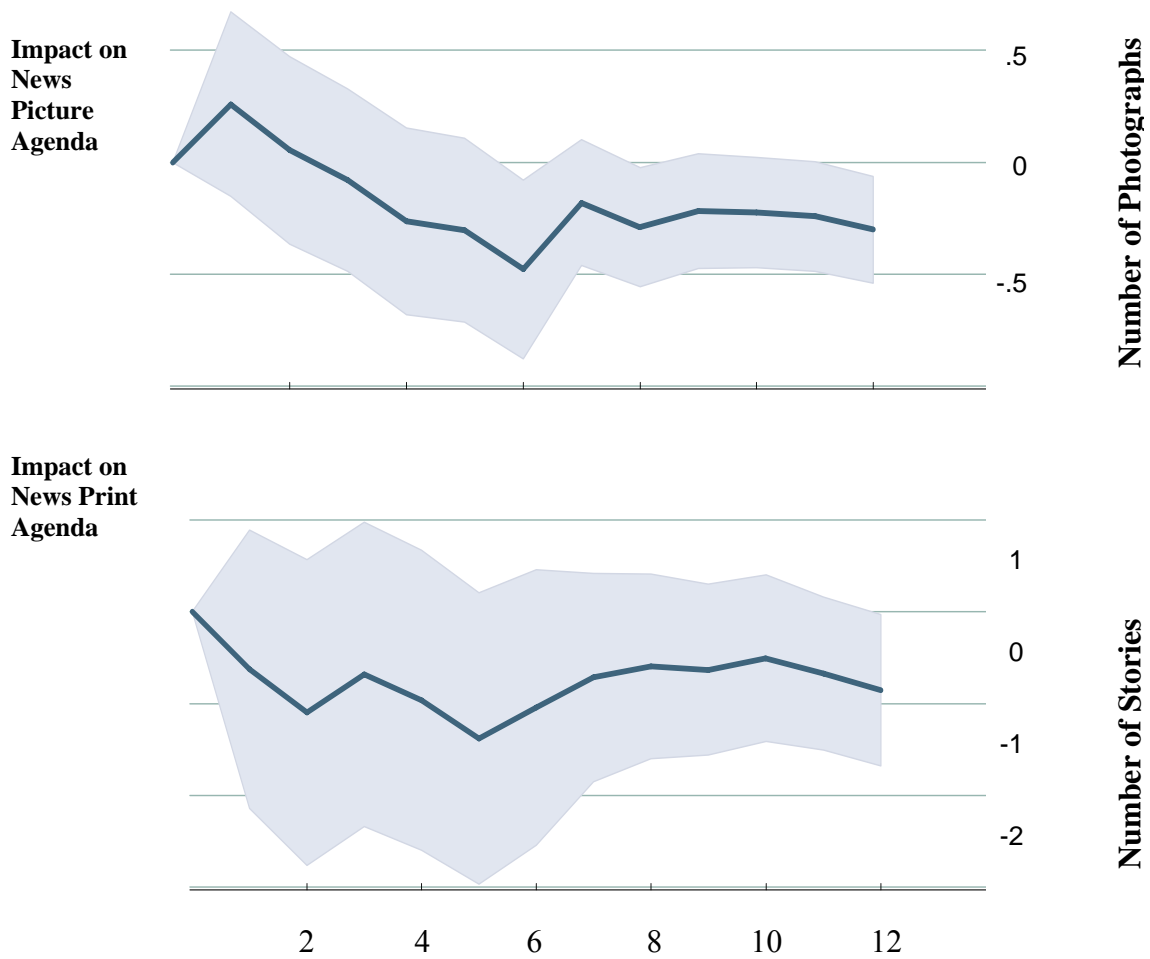


Figure 4.11: Continued

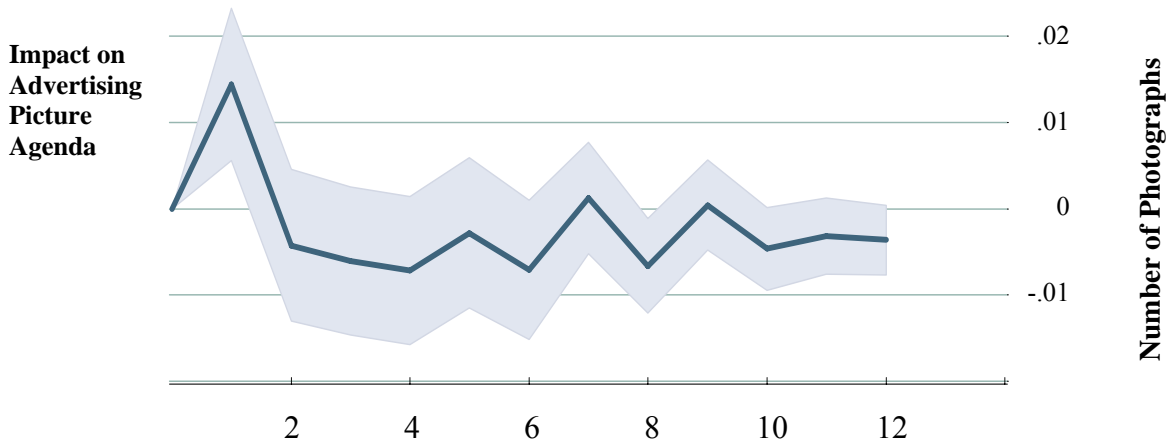
Proceeding to Figure 4.12, we now consider the significant systemic effects on the picture advertising variable. According to Granger test results, the advertising agenda is responsive to both print media coverage and public opinion. The two panels in Figure 4.12 illustrate that the advertising agenda appears to respond in different ways. According to the top panel, an increase in news stories on the environment causes industry advertisements increase sharply and decisively for a short period, and then return

to a pre-shock level. In response to heightened public concern for the environment, the advertising agenda rises in the first month, drops significantly in the second and then rises again in the third month before flattening out. Although there is a sharp and significant plunge in advertisement output in response to the rise in public concern the net effect is positive. As the public increasingly worries about the environment, the response from industry advertising appears to be a brief and strategic decision to ride out the storm and then just as quickly respond to the concern with a sharp increase in public lobbying efforts. This response indicates a lot. Industrial greenwashing is a response to public opinion and it tends to increase when the public is more concerned about environmental degradation

Public Lobbying and Influence

Taken together, the five-equation impulse response functions and Granger tests provide an empirical outline of how one particular type of public lobbying effort works within the dynamics of public opinion, media attention and policy action. The findings indicate that greenwashing advertisements are a strategic response to the interest group's political environment, specifically to the *movement* of public opinion. The causal dynamics of the system provide strong evidence that the advertisements are not merely an attempt to communicate latent public opinion, but an attempt to influence and mobilize or de-mobilize it – or merely communicate the possibility. With this data, we cannot conclusively determine the exact political motives of the interest groups. We can, however, observe the causal effects of the advertisements. Although the advertisements appear to be responsive to public opinion, it is their empirical effects on policy action that are most significant – and politically advantageous.

Shock to News Print Agenda



Shock to Public Opinion

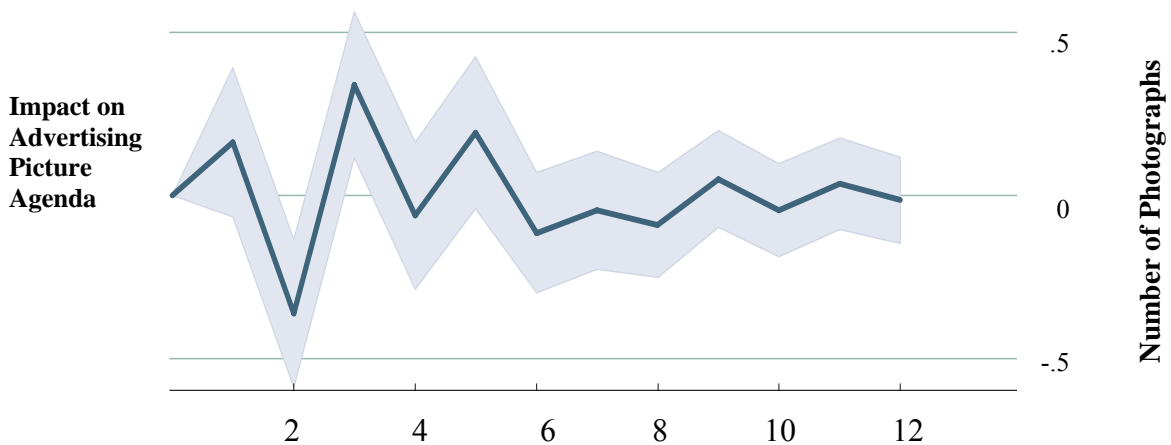


Figure 4.12: Impulse Response Functions: Five Equation Model

The influence of the advertising agenda on the public, policymakers, and media tells us something about the effects – intended or otherwise – of public lobbying, but it is the advertising agenda’s endogenous response to those same variables that is, in this case, more interesting. By looking at how the advertising agenda responds to the other variables in the system, we can make some inferences about what it is the industrial interests are trying to accomplish through this type of public lobbying. The advertising variable modeled here is causally responsive to the news media (print media) and public

opinion. It is responding to shifts in press attention and public concern and it is apparently trying to diffuse both.

The signaling model, in other words, appears to be accurate in its estimation that interests are communicating directly to the policymakers, but it is inaccurate in the way it conceives the relationship between the interest group and the public – at least insofar as the hypothesis applies to environmental concerns and industrial interests. Granger tests and impulse responses show us that the advertising agenda is above all responsive to movement in the public agenda. When the public becomes more concerned with environmental problems the industry response is a little erratic (see Figure 4.12) but the net effect is to increase the number of advertisements, which in turn diminishes policy action.

These dynamics are inconsistent with the signaling hypothesis for several reasons. First, if Kollman's explanation of public lobbying as signaling were accurate, we would expect the greenwashing efforts of industry to fall at a time when the public is broadly supportive of more environmental regulation. The signaling hypothesis contends that interests will go public when the preferences and salience is in their favor. As the results indicate, the relationship is quite the opposite: lobbying efforts increase after a spike in public concern for the environment.

Remember that increased public concern is a measure of the number of people who consider the environment to be the single most important problem facing the nation. When this number goes up, it is not just a more salient issue for the public, with an approximately even distribution of people who support environmental protection and those who do not. When the public is more concerned with environmental problems, they

are worried about excessive pollution and deforestation and ecological degradation. The public is mobilized and it is mobilized disproportionately towards being protective of the environment.

Second, and in terms of salience alone, the signaling theory would also lead us to expect that public lobbying would foster a positive relationship between the public and policymakers. Instead what we observe is a negative relationship. In his description of public lobbying, Kollman proposes that “policymakers will be responding to sincere expressions of constituents’ concerns rather than to well-funded special interests sending misleading signals” (p.77). If the policymakers were responding to the public’s sincere concerns (communicated through the advertisements) we would expect policy action to increase. But the empirical effects of the industry’s advertising efforts are clear. An increase of industry-sponsored advertisements diminishes policy action.

According to the empirical results assembled here, the mediated relationship between the interest group, public and the policymakers is something (substantially) different than the signaling model that Kollman hypothesizes. The interest group is indeed communicating directly with policymakers, and that the group’s actions are driven by concerns with public salience, but it is plainly not communicating the sincere interests of that public to the policymakers.

I have proposed strategic framing as an alternative model by which to understand the dynamics of public lobbying. While aggregate time series data considered in this chapter have allowed for a considerable amount of analysis, both of the modal effects of media and for the testing of the signaling hypothesis, they tell will tell us nothing about framing effects. While framing effects do become manifest in the aggregate, the only way

to empirically examine whether a communicative text or photograph is framing a public problem is to examine the changes at a psychological level and control for alternative factors.

This, then, is the objective of the next chapter: to bring the analysis to the level of the individual. In order that I may examine modal effects on the individual and put the framing model to a solid empirical test, I will design and conduct an experiment. Specifically I will use an experiment that uses material duplicated from General Electric's campaign as the experimental condition to determine the extent to which the photographic and textual messages within a public lobbying campaign are or are not framing the public policy issue for individuals.

Chapter 5 – Experiment

In the previous chapter, I used a macro-analytic approach to examine how written and pictorial messages – in both editorial and advertorial media – influence the aggregate public and collective actions of policy makers. Findings suggest that the salience of environmental concerns for both the public and policy makers (as aggregates) are impacted by variations in mediated photographs and text. A surge in photographs in editorial content causes policy attention to rise. Public opinion is influenced by both editorial text and photographs. Conversely, a rise in industry advertising causes only policy action to be diminished. Findings further indicate that the modality of the environmental information is important. Mediated pictures and text have a differential effect on public salience and policy action.

In this chapter, I further develop this line of inquiry by delving into the question of how opinions are influenced by public lobbying campaigns. Specifically, I will use an experiment to examine whether framing theory accurately accounts for multi-modal effects on participants. The research question asks whether images, text or some combination of the two have discrete framing effects in advertising messages.

The experiment achieves two broad objectives. First it permits for the analysis of preferences and specifically the testing of whether preferences change as a result of exposure to public lobbying efforts. Issue salience is a key ingredient of how we conceive public opinion, but preferences and especially whether they change are critical to our investigation of modal effects and whether environmental public lobbying is acting as signaling or framing. Second it allows us to examine opinions at an individual level.

Public opinion, after all, is both collective behavior and a collection of individual opinions. Individual-level opinion change is theoretically central question of whether interest groups are signaling or framing public opinion in their public lobbying campaigns. If preferences change at the individual level as a result of exposure to the experimental manipulation then we will have strong evidence that the signaling model fails in its explanation of the dynamics of public lobbying. If preferences change as a result of a shifting of belief importance items and not beliefs themselves then we have evidence to support the framing model.

In a more pragmatic vein, individual-level preferences are worth considering because individuals constitute the parts that compose the collective public. What happens at the individual level has collective implications. Further, the collective data examined in the previous chapter present some seemingly inconsistent findings that are worth examining at the more granular level. Aggregate data show us that the public's response is both stable and unstable. There is confusion or ambivalence in the aggregate public's endogenous response to shocks in the public policy system. An analysis of individual preferences may help us better understand what underlies this aggregate ambivalence.

Theoretical Approaches and Policy Preferences

Not all constructs of policy preference are identical. Different scholarly approaches to the politics of the policy process accept differing models of decisionmaking. Interest group scholars, who are predominantly concerned with elite choice, tend to model political preferences as largely consistent and resistant to influence. For reasons of practicality, Kollman (1998) models public opinion as “reduced form” (p.26). Public policy preferences in other words are expected to remain consistent over

time. Kollman's contention that policy preferences are stable is built in large part on the assumption that interest group leaders act strategically and in part on the assumption that elites consider the public to be "a largely fixed but slightly moveable constraint" (p.26).

Kollman's assumption may be an accurate portrayal of what interest group leaders understand about public preferences and decisionmaking, but it is empirically questionable because it is theoretically overreaching and it disregards evidence to the contrary. Kollman's reduced-form model of public opinion is based on research that finds aggregate public opinion moves gradually and rationally over time. The model overreaches, however, by confusing aggregate behavior (constant) with individual-level political preference (fixed). In addition, by making the claim that opinions are fixed, Kollman ignores well-known scholarship which, while not contradictory to the aggregate level findings, contends that individual preferences are in fact quite inconsistent.

Kollman rests his claim on fixed public preferences on the work of Page and Shapiro (1992), who argue that aggregate opinion moves only gradually when identical questions are asked over time. When collective public preferences do shift, they do so in ways that are explicable by real-world events. While Page and Shapiro's ideas are not without their detractors, there is a general consensus that a collectively "rational" public exists, but that constant aggregate preferences says nothing about individual-level opinions upon which the measure is purportedly based. Collective opinion becomes "rational" because the adding or averaging of individual's survey responses tends to cancel out the distorting effects in the measurement of individual opinions and unstable individual opinions themselves. Page and Shapiro's ideas, in other words, should not be interpreted as applying to anything else but a collective response.

Research that explores public opinion at the individual level finds that people's preferences are neither stable nor coherent. Zaller (1992) and Zaller and Feldman (1992) argue that conventional surveys (and the responses that are gathered from them) tell us very little about the true policy preferences of the public. According to Zaller and Feldman, people do not possess opinions at the level of specificity that surveys assume. Most people are much too conflicted and ill informed about issues of public policy to have what we would call an attitude that is either stable or consistent. In fact, responses to survey items are not opinions at all but responses given by respondents "on the basis of whatever ideas are on the top of their heads at the moment of answering" (Zaller and Feldman, 1992, p.579).

According to this scholarship, the opinions that are expressed in survey responses are not measures of collective individual attitudes towards issues of public policy; they are merely reflections of what has been made salient "by the questionnaire and other recent events." Zaller and Feldman argue that the answers given by survey respondents reflect autonomous ideas, values or feelings that have been made salient by the question itself or salient information in the media. These values or feelings can be inconsistent with one another and respondents can offer opinions on issues that are inconsistent over time, but this does not mean these beliefs are not long-standing and sincere. What tends to change is the framing or priming mechanism – which changes how the survey respondent sees the problem. In the media, these frames are largely set by elites (who are the sources of news) and the journalists who report on them. Aggregate public opinion may therefore appear empirically stable, but according to this model, that stability is

more a function of stable framing of issues by elites and journalists than it is of “fixed” or “true” public policy positions.

Two things should be noted about this conception of public opinion. First, aggregate stability of the public is only as stable as the consensus of opinions that appear in the news media. The aggregate policy preferences of the public may be stable but that does not mean that that stability is made manifest by a collection of true and fixed policy positions. On the contrary, aggregate stability is quite capable of volatility because the stability it represents is just an echo of (mostly) elite consensus on issues of public policy. If elites (or anyone given access to the news media) change how they construct a public problem or consensus suddenly breaks down, so will the stability of aggregate public opinion. The salience (and preferences) of public policy issues may fall within a very narrow range for a long period of time, but it is capable of shifting quickly and radically (Baumgartner and Jones, 1993; Jacobs and Shapiro, 2000).

Second, this conception of public opinion hypothesizes that public preferences can be manipulated in much the same way that we observe shifts in issue salience. Public preferences – as expressed in opinion polls – are merely a reflection of salience of elite problem constructions. By presenting a public policy issue in a certain way, by making more salient a particular evaluation of a public policy issue, elites are essentially constructing public preference – hence the importance of frame contests.

This turns Kollman’s assumption on its head. Instead of saying that the public has true and fixed opinions on matters of public policy, Zaller (1992), Zaller and Feldman (1992) and Zaller and McClosky (1984) contend that public opinion is little more than a reflection of elite issue construction. Stability if it exists in public opinion is entirely

manufactured by elite construction and consensus. Elites, in other words can “frame” issue stability by remaining consistent in how they present the public policy issue.

Instead of making the assumption that the public must be persuaded on issues of public policy, as Kollman does (1998, p.60), contemporary scholarship on public opinion maintains that elites do not have to change political beliefs or attitudes; most people simply do not have consistent and specific political attitudes to change. Elites move public opinion by presenting their objectives in a way that seems consistent with beliefs and values that underlie the decision at the moment of response. Political manipulation, therefore, is not changing specific political beliefs as much as it is argumentation or presentation that elicits particular values, beliefs or considerations to appear more relevant than others. Instead of changing beliefs, political influence is merely a framing of the problem so that some values appear relevant to people, while others don't. Because people do not have true attitudes towards political policy issues, they draw on values or beliefs that are more foundational. These values are not changed or altered– they are merely made to seem relevant or applicable by the political argumentation or presentation.

Jacobs and Shapiro, for example, maintain that political elites use public opinion polling not to pander to the public, nor to persuade the public, but rather to present their policy objectives in a way that will be more likely to resonate with the public. In the words of Dick Morris, a pollster for President Clinton, politicians “don't use a poll to reshape a program, but to reshape your argumentation for the program so that the public supports it” (in Jacobs and Shapiro, 2000, p.xv). The purpose is more rhetorical than persuasive. Politicians “manipulate public opinion by tracking public thinking to select

the actions and words that resonate with the public” (Jacobs and Shapiro, p.xvi). Jacobs and Shapiro’s observations are consistent with framing theory, which maintains that political influence is achieved by highlighting certain values or considerations in the perception of the problem rather than changing their beliefs about the problem.

So how does one reconcile these inconsistent ideas on public opinion? Shapiro, who is a proponent of both schools of thought, appears to suggest that public opinion maintains consistent as long as elite framing of the issue remains consistent (Jacobs and Shapiro, 2000). When the salient frame changes, aggregate public opinion shifts as well.

It is worth pointing out that the results presented so far conform to these expectations quite well. Public concern for the environment is significantly affected by all other variables in the system. It is especially responsive to news stories, which contain elite constructions of problems. The data support the hypothesis that public opinion can be stable but volatile. The public appears remain relatively consistent in its aggregate level of concern for the environment, but as a collective it also demonstrates a high level of sensitivity to systemic impulses.

The Mobilization of Bias and Public Opinion

Kollman questions Schattschneider’s (1960) assertion that it is the politically weak who will attempt to change the field of battle by socializing conflict. In doing so, Kollman argues that Schattschneider’s expectations are unlikely because public opinion, latent though it may be, is fixed in its preferences of public policy issues. Political interest groups are limited in their capacity to engage in public lobbying, Kollman reasons, because public opinion remains relatively fixed on issues of public policy. Socialization of conflict, Schattschneider’s term for interests broadening the political

playing field to change the dynamics of the political battle, is therefore predicted to be an unlikely model for public lobbying.

But the theories discussed above dispute the notion of fixed public preferences – at least as they reflect a true measure of collective issue preferences. If it is correct that aggregate public opinion is consistent only because it reflects elite consensus on an issue, then it must also follow that the aggregate public can be manipulated. Jacobs and Shapiro make this argument explicitly. Politicians use polling not to find out where the public stands on issues, but as a tool to construct policy issues in a way that will shape public perceptions.

The model elite-led public opinion also proposes a more theoretically consistent mechanism to account for why aggregate opinion (as measured by survey responses) remains stable over time. If collective public preferences are indeed little more than a reflection of elite opinions then Schattschneider's insights on institutional structure and bias appear even more relevant. Zaller's receive-accept-sample model provides a social-psychological means by which public opinion operates as an extension of Schattschneider's "mobilization of bias" (p. 69). The news media, as *the* principal instrument of political organizations, have become in essence an institution by which elites (and whoever else can gain access) are able to displace and develop conflict for political gain (*e.g.* Kernell, 1993; and especially Cook, 1998). They have, in Schattschneider's words, become a procedural element in political conflict definition. Just as the structures, routines and institutions of government themselves exhibit "a bias in favor of the exploitation of some kinds of conflict and the suppression of others" (Schattschneider, 1960, p. 69) so too do the expectations and routines of the news media.

Finally, the elite-driven model of public opinion presents an empirically testable alternative model for public lobbying (as conflict expansion) to occur. Since public opinion is highly responsive to issue construction as presented through the media, interest groups may, contrary to what Kollman argues, expand and re-define public policy issues through the media. In short, interest groups may at times be able to engage in conflict expansion by framing a public policy issue in order to achieve their political goals.

That is one purpose of this chapter: to test whether signaling or framing provides a more accurate account for how people respond to public lobbying efforts.

Framing theory contends that individual preference is responsive to the frames presented through the media. Nelson and colleagues (Nelson, Clawson, Oxley, 1997; Nelson, Oxley and Clawson, 1997; Nelson and Oxley, 1999) contend that opinions can be altered through mediated messages because they have the ability to construct or reconstruct how people perceive public problems. Signaling theory (as presented by Kollman) hypothesizes that political preferences are fixed.

The experiment in this chapter has been designed to test: whether individual opinions change as a result of being exposed to a mediated message; if opinions do change, do they change in a manner consistent with framing theory; and finally, are these effects (opinion change and framing effects) driven by pictures, text or both modalities?

By examining opinion change and framing effects within a specific interest group campaign, I will apply the perspectives and techniques of framing effects to some longstanding questions of interest group research. These questions are both pragmatically and theoretically important. The question of whether or not political interests may influence and re-define public preference is central to the exercise of political power. If

mediated campaigns are able to change preferences then the ambitions of interest groups are not constrained by public preferences so much as they are constrained by their financial resources. Furthermore, if interests are able to actually frame the public policy issue through mediated public lobbying efforts, then the public becomes a means by which interests are able to define the lines of conflict.

The public thus becomes not a constraint as conceived in pluralist democratic theory, but just another mechanism by which interests define and redefine political issues (Baumgartner and Jones, 1993; Kingdon, 1984; Schattschneider, 1960).

Framing, Modal Effects and Preferences

While some scholars see framing as a mechanism with an almost limitless ability to manipulate opinions, other scholars have begun to examine the boundaries of these effects. Druckman (2001), for instance, finds that while credible sources do exhibit experimental evidence of framing effects, non credible elite sources do not.

This experiment will contribute to this research by examining the modal limits of framing effects. Findings have thus far concentrated on the framing effects of text or words – specifically source-related constraints (Druckman, 2001; Druckman, 2004). Although Nelson and Kinder (1996) involve a series of photographs as part of their study, they do not examine the effects in a multi-modal experimental manipulation. Up until now, there has been no systemic analysis of the effects of images while including and controlling for the effects of text.

What follows is a test of the relative effects of text and photographs on beliefs, considerations and opinions in advertorials. As I've explained in an earlier chapter, the experimental conditions are based on real-world public lobbying effort undertaken by

General Electric to influence the public and policymakers at the E.P.A. about whether to dredge PCBs from the Hudson River. In copying several specific advertisements actually used in a campaign by General Electric, my aim in part is to heighten external validity of the experiment.

The General Electric lobbying effort is an exemplary real-world empirical comparison of signaling and framing and a test of the effects of public lobbying. If individual opinions on public policy questions are as intransigent as scholars like Kollman suggest then we would expect no major opinion change as a result of exposure to campaign material. If, on the other hand, framing theory is a better account for how people are influenced then we would expect opinions to change as a result of shifting belief importance items.

I expect that framing better explains the manner in which people respond to questions and (consistent or otherwise) state their policy preferences. As such, I hypothesize that campaign content will influence the considerations that participants bring to bear on their consideration of the dredging issue and this in turn will influence an opinion change. Consistent with framing theory Zaller (1992) and Zaller and Feldman (1992), I expect that opinion change will be initiated by change in foundational values – in the belief importance – *not* a change in the beliefs or values themselves (Nelson, Clawson, Oxley, 1997; Nelson, Oxley and Clawson, 1997; Nelson and Oxley, 1999; Druckman, 2001). Further, with regard to the question of modal effects, I expect photographic conditions to have a similar effect on the beliefs, belief importance and opinions of the participants as textual conditions.

A Test Case for Framing Effects

By examining this real-world advertising campaign, I've created an experiment that is a particularly stringent test of framing effects for at least two reasons. First, as an issue the environment is not generally nor is the Hudson River issue specifically salient for the experimental population used. Earlier research on a representative sample of Louisiana residents (Jenner, 2002) revealed that while reported concern for the environment was high, a large portion of the population could not correctly identify environmental organizations like Greenpeace and The Sierra Club as being pro-environment. If we accept the findings of Nelson et al. (1997), who argue that framing depends on existing beliefs and cognitions, then the framing effects within this population are expected to be somewhat mitigated.

Previous research has examined framing effects on issues where the competing considerations or concerns are more apparent and diametrically opposed, such as racial tolerance and civil liberties (Nelson, Clawson and Oxley, 1997) and welfare and spending on the poor (Nelson Oxley and Clawson, 1997; Druckman, 2001). Nelson and Oxley (1999) do find evidence of framing effects on an environmental issue (property development), but the concerns of property rights are expected to be more universal than whether or not to dredge a river. Dredging, for one, is not a clear concept to everyone. The dredging question, in short, is not expected to have evident nor associated strong and salient considerations that Nelson and Oxley (1999) have suggested are the mechanism by which framing works.

The concerns that one expects to be salient to the residents of the Hudson River – purported competing interests of jobs versus environmental degradation or of economic

vitality versus personal and familial health – should not be lost on this group of participants, however. This region of Louisiana, ignominiously known as Cancer Alley, struggles with unemployment, disease and pollution that are in some way related to the local industry. Cancer-causing releases by oil and chemical companies in Louisiana are the second worst (water releases) and third worst (air quality) in the nation (Wold, 2005)

In addition to the possibility that the lack of relevant considerations might lessen framing effects, the design of the experiment itself is expected to further diminish the possibility of significant findings. Unlike previous experimental work on framing effects, this study will determine significance on the basis of comparison with a control group – not a competing frame. Empirical work on framing effects to date rests on the findings of significant differences of opinions (and beliefs and belief importance) resulting from being exposed to contrary frames (Nelson, Clawson and Oxley, 1997) and welfare and spending on the poor (Nelson Oxley and Clawson, 1997; Druckman, 2001). None of the research measures framing effects against a control group. As Druckman (2001) clarifies:

None of the treatment conditions significantly differ from . . . [the] control group average. This suggests that while different frames attributed to a credible source resulted in significantly different opinions, none of the frames had a significant effect on unadulterated (overall) opinion (as measured by the control group). Many framing experiments do not include such control group comparisons, and it is an interesting question whether the frames in these past experiments are strong enough to influence unadulterated opinion. (2001, p. 1054)

Furthermore, unlike the clear opposing issue frames that are the independent variable in previous research, the framing used in the G.E. advertisements intentionally aims to obscure which action is better for the environment. With the development issue experimented on by Nelson and Oxley (1999), one is faced with a choice to preserve or

destroy the environment. The choice in this experiment is less clear. The environmentally destructive choice (leaving PCBs in the river) is portrayed in the advertisements as the environmentally responsible choice.

Finally, in line with Druckman's (2001) research on source-related framing effects, I expect that General Electric will be somewhat constrained in its ability to frame the dredging issue. Because General Electric has obvious material interests at stake in the dredging decision, I expect that it will not be considered an entirely credible source by participants. Druckman finds that non-credible sources are inhibited in their ability to frame public policy issues and thus face constraints in their ability to manipulate public opinion. While General Electric is not what one would consider a non-credible source, its financial self-interest in the dredging issue could reasonably be expected to limit its ability to re-define the dredging issue as the environmentally proper choice.

These mitigating factors strengthen the experiment and broaden the possible generalizations we might make from the results. If there are framing effects – that any of the framed messages elicit significantly different opinions, beliefs and belief importance considerations from the control group – then we should be confident that the effects are real and not idiosyncratic.

Participants

A total of 169 students enrolled in a single large section of Political Science 2051 took part in the study. Participants received extra credit for their contribution.⁶⁹ Table 5.1 summarizes basic demographic characteristics of the participants and compares them with a representative sample of Louisiana Adults. In several key demographic measures, the data indicate that I have not captured what appears to be a representative sample of

⁶⁹ Experiment was conducted during the spring semester, 2004.

the Louisiana population. I have oversampled White and Hispanic participants and undersampled Black participants. It further appears that I have also oversampled Republicans and undersampled Democrats.

The most concerning of the discrepancies is the apparent oversample of self-identified republican partisans. At face value, this difference raises some concern that text and image framing may elicit a different response amongst the experimental sample as compared to the population as a whole. We might expect that this group would be more resistant to some environmental frames (the intrinsic right of the environment to be free of pollution, for example) than a more representative sample. However, as long as participants are randomly assigned, partisans should not cluster in one condition or another. The control group, moreover, should tell us what the sample would do in the absence of experimental manipulation. In this case, the control group is moderately pro-dredging (see Table 5.2a). The concern about partisan oversampling is further mitigated by a closer examination of how the participants defined themselves ideologically. If we consider the liberals and conservatives alone, the sample more closely represents the population.

Experimental Procedure

Experimental participants were first asked to sign a “human subjects” release form required by Louisiana State University. Students were instructed to read a short explanation and series of instructions and were then told that the purpose of the experiment was to determine how well news articles inform their audience about public affairs issues. They were also informed that their responses would be anonymous.

The first ten questions gathered demographic and media consumption data. All participants were asked the same questions in identical order. Next, participants read the same short news article relating to the Hudson River dredging issue and then answered three questions whose principal value was to add credibility to the cover story.

Table 5.1: Demographic and Political Characteristics of Participants

	Percent	Louisiana Survey
Gender		
Male	32.9	34.7
Female	67.1	65.3
Race/Ethnicity		
White	88.2	68.6
Black	5.88	23.4
Asian	0.59	1.18
Hispanic	4.12	2.0
Other	1.18	4.8
Political Ideology		
1 – Very Liberal	0.59	8.3
2	10.0	10.8
3	14.7	8.0
4	14.7	20.5
5	32.4	11.5
6	25.9	25.3
7 – Very Conservative	1.8	15.7
Party Identification		
1- Strong Democrat	9.4	27.6
2	10.0	17.7
3	5.9	7.5
4 - Independent	1.2	10.6
5	4.1	6.5
6	41.8	11.9
7 – Strong Republican	27.7	18.2

*The Louisiana Survey is a telephone survey of 1103 voting-age Louisianans conducted during June 2002.

At this point the experimental manipulation was inserted. Participants were randomly exposed to one of ten experimental conditions. See Appendix C for replication

of the advertisement conditions. Participants assigned to a control group were not exposed to any advertisement at all.⁷⁰ The experimental conditions were based on a 3x2x2 factorial design. As described in the methods chapter, participants were exposed to one of the following versions of three possible variations – **advertisement type** (image only, text only and both photograph and text), advertisement variation (dredge advertisement or dive advertisement), and sponsorship variation (Sierra Club or General Electric).⁷¹ The conditions were constructed as outlined in Figure 5.1.

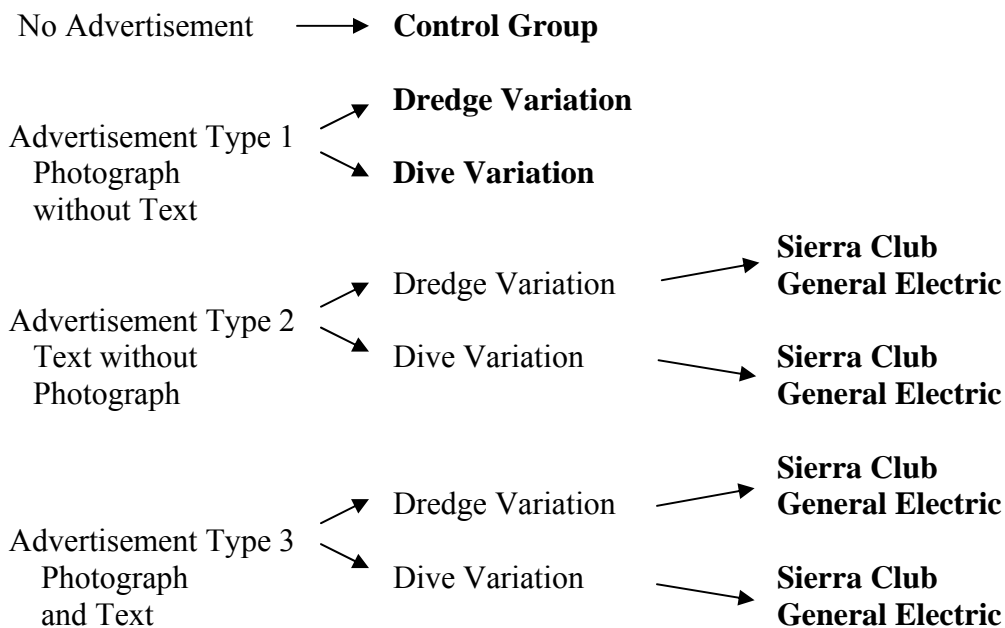


Figure 5.1: Factorial Experimental Conditions⁷²

After being randomly exposed to one of the possible ten experimental manipulations or the control group (no advertisement exposure) all participants were

⁷⁰ Control group membership was by random assignment as well. Control group members were exposed to the news story and then proceeded directly to the questions which follow the experimental condition.

⁷¹ General Electric was the obvious industrial interest to include as the industrial sponsor. The Sierra Club was used because it is a widely recognized environmental organization.

⁷² The bold text denotes the 10 experimental advertisement/type/sponsorship conditions.

asked to respond to a battery of questions designed to gauge their *opinion* on the dredging issue, the relative importance of eight belief items (*belief importance*) and three *beliefs* that were relevant to the issue.

Each of these three measures makes up the key dependent and independent variables for evaluating framing effects. The questions are included as part of Appendix B. The opinion, belief importance and belief measures were closely built according to the measures first used by Nelson and Oxley (1999). The measures were constructed as follows:

Opinion. Respondents were asked two questions concerning their opinion on the dredging issue.⁷³ The first asked respondents whether they would support or reject the dredging decision (*support*). The second asked how they would vote in a special election (*vote*). Participants answered both questions on seven-point branching scales.⁷⁴

Belief Importance. Participants were asked to rate the importance of eight “ideas, beliefs or views.” The items included a variety of values or considerations thought to underlie decisionmaking on environmental problems: “the protection of family and loved ones and/ or personal health” (*Family*); “cleaning up the environment” (*Environment*); “the rights of people to be free of a polluted environment” (*Pollution*); “the intrinsic rights of the environment to be free of pollution” (*Intrinsic*); “the rights of people to say how their land is used” (*People*); and “general support for business and economic development (*Business*).

⁷³ These questions were considered separately in the initial difference of means tests, but were combined to form an overall opinion measure in the regression analyses.

⁷⁴ In the first question, the responses ranged from -3 (strongly oppose) to +3 (strongly support). The second question, again a seven-point branching scale, ranged from -3 (definitely reject) to +3 (definitely approve).

In addition to these six questions, two cue-giving questions measured the self-reported importance of statements by General Electric (*G.E.*) and environmental groups (*Env. Groups*).⁷⁵

Beliefs. Finally, respondents were asked by way of three seven-point semantic differential questions to state their beliefs relating to: the impact of PCBs on the environment (*PCBs*); the health consequences of PCBs (*health*); and the impact on General Electric if the company is forced to dredge (*G.E. impact*).⁷⁶

Effects of Advertising Conditions and Research Question Two

Previous research uses consistent methodology to determine whether or not framing effects exist. Nelson and colleagues (Nelson, Clawson and Oxley, 1997) and welfare and spending on the poor (Nelson Oxley and Clawson, 1997) have developed an approach that is replicated by subsequent research (Druckman, 2001) in which difference of means tests are used to compare the beliefs, belief importance rankings and opinions of two experimental groups. Following the difference of means tests, researchers conduct a path analysis to determine the relative impacts that beliefs and belief importance items have on the participants' opinions. In all of the experiments thus far, experimental conditions are opposing frames on the same issue.

This experiment is not as clear cut. I have more than two conditions and the frames are not oppositional. As a consequence, I am obligated to examine my results in a slightly different fashion. First, I will conduct a difference of means test in which I compare the means of each experimental condition with a control group. Second, I will not use path analytic techniques for my mediational analysis. Instead I will present

⁷⁵ Respondents were asked to rate from 1 (unimportant) to 10 (important) the "claims of General Electric" and "the claims of environmental organizations."

⁷⁶ The questions ranged from -3 (extremely negative) to +3 (extremely positive).

straight-forward regression results for a series of dependent variables (opinions, beliefs and belief importance items). While previous research has relied on OLS regression to generate a causal model of the effects of experimental conditions, beliefs and belief importance on opinions, the experimental conditions themselves have been dichotomous ((Nelson, Clawson, Oxley, 1997; Nelson, Oxley and Clawson, 1997; Nelson and Oxley, 1999; Druckman, 2001). In this case, the factorial design makes the path analytic technique unwieldy. I will thus use OLS to estimate causal implications of the individual experimental conditions of interest and their impacts on beliefs, belief importance and opinions while controlling for other manipulations. In essence, the estimation procedure remains the same as earlier research but with the additional conditions and necessity for statistical control, the presentation and modeling will differ slightly.

To begin, I will examine bivariate difference of means between each of the experimental conditions and a control group. Evidence of framing effects will be inferred if there are significant differences between experimental and control groups in opinions and belief importance items. Table 5.2a and 5.2b outline these initial findings.

Columns in table 5.2a and 5.2b display results for the ten experimental variations and the control group. The rows include measures of belief importance, belief measures, cue-giving, and opinion items.

Overall, Tables 5.2a provides evidence that advertisements with text influenced people to report anti-dredging opinions. In each ad condition that includes text, opinion change is significant and in the expected direction. Opinions expressed by participants who saw a text advertisement were significantly more likely to be anti-dredging than the control group. Responses to the belief importance measures also show that opinion

Table 5.2a: Difference of Means for Advertisement Type and Variation Conditions

Conditions	Text and Photograph		Text Only		Photograph Only	
	Dredge Ad	Dive Ad	Dredge Ad	Dive Ad	Dredge Ad	Dive Ad
Belief Importance Items						
Family (9.087)	9.156	8.875	8.815	8.867	8.765	9.125
Environment (7.304)	8.000	7.125	7.259	8.067	7.353	7.438
Pollution (7.217)	7.938	7.375	7.185	8.133	7.176	7.125
Intrinsic (6.391)	7.125	6.458	7.111	7.533*	6.765	6.938
People (6.174)	6.250	7.417*	6.704	7.567*	7.059	6.750
Business (5.739)	5.188	6.292	4.704	6.167	5.647	5.188
Cue Givers						
G.E. (4.435)	4.188	5.167	3.296	4.967	4.529	4.125
Env. groups (4.304)	5.250	6.333*	5.074	5.800*	5.882*	5.188
Opinion items						
Support (0.565)	-0.313*	-0.417*	-0.259*	-0.968*	0.118	0.500
Vote (0.478)	-0.281*	-0.250*	-0.259*	-0.677*	0.412	0.438
Beliefs						
PCBs (-0.565)	-0.875	-0.708	-0.778	-0.871	-0.941	-0.938
Health (-0.870)	-0.813	-1.083	-0.963	-0.806	-1.176	-0.813
G.E. Impact (-0.348)	-0.719	-0.625	-1.222**	-1.129**	-0.882	-0.688

Note: Scores reflect mean scores for each category. Bold numbers indicate a significant difference with the control group as tested by a two-sample t-test. Opinion and Belief items had directional hypotheses, but the belief importance items did not. Thus a two-tailed t-test was employed to test whether the means were significantly different. Control group mean scores are in parentheses.

*p < .10, ** p < .05

Table 5.2b: Difference of Means for Advertisement Sponsorship Conditions

Conditions		Sierra Club		General Electric	
		Dive Ad	Dredge Ad	Dive Ad	Dredge Ad
Belief Importance Items					
	Family (9.087)	9.571	9.310	8.484	8.360
	Environment (7.304)	7.750	7.586	7.581	7.72
	Pollution (7.217)	7.500	8.034	7.677	7.520
	Intrinsic (6.391)	7.179	7.172	7.065	6.920
	People (6.174)	6.750	7.724**	6.194	7.240
	Business (5.739)	5.036	5.793	4.903	6.720
Cue Givers					
	G.E. (4.435)	3.964	4.759	3.613	5.400
	Environmental Groups (4.304)	6.071**	5.759**	4.355	6.360**
Opinion items					
	Support (0.565)	-0.250*	-1.310**	-0.323**	-.077*
	Vote (0.478)	-0.321*	-0.966*	-0.226*	-0.038
Beliefs					
	PCBs (-0.565)	-0.857	-0.896	-0.806	-0.692
	Health (-0.870)	-1.143	-1.069	-0.645	-0.769
	G.E. Impact (-0.348)	-0.857	-0.966*	-1.032*	-0.846

Note: Scores reflect mean scores for each category. Bold numbers indicate a significant difference with the control group as tested by a two-sample t-test. Opinion and Belief items had directional hypotheses, but the belief importance items did not. Thus a two-tailed t-test was employed to test whether the means were significantly different.

*p < .10, ** p < .05

change may be in part due to advertisement influence on the considerations that underlie the decision. Opinions, in other words, appear to have been influenced by how the issue was framed by the advertisements.

Table 5.2a also shows that the opinion and framing effects that are evident for the textual and sourcing conditions are not apparent in the photograph-only advertisements. Participants who were exposed to advertisements with only photographs did not display similar change in opinion, nor did the photographs appear to change how they looked at the policy issue.

Table 5.2b indicates that opinion effects for the Sierra Club advertisements are larger than General Electric advertisements.⁷⁷ Still the effects of moving from slightly pro-dredging, which we observe in the control group, to anti-dredging are largely independent of whether the participant was exposed to the Sierra Club or General Electric-sponsored advertisement.

Effects of Advertising Conditions on Opinion

The eight opinion measures in Table 5.2a show that advertisements with text cause opinion change. In each of the variations of the advertisement that include text, responses to the *vote* and *support* questions were significantly different from the responses provided by the control group. The responses were different *and* in the predicted direction. The eight opinion measurement items show that participants who were exposed to an advertising condition with text were significantly more likely to reject

⁷⁷ This is further confirmed by a comparison of means between the vote and support measures for participants exposed to the Sierra Club and General Electric advertisements. Using the means for overall Sierra Club and General Electric conditions, t-tests confirm that the Sierra Club has a significantly stronger impact on the respondents' support for dredging ($t = 2.090$, $p = 0.039$) and marginally stronger impact on the respondents' vote ($t = 1.793$, $p = 0.076$). Participants exposed to the Sierra Club conditions in other words were significantly more anti-dredging than the participants exposed to the General Electric conditions. Both sets of participants, however, were anti-dredging and significantly more so, for all but one instance, than the control group – which was pro-dredging.

the decision to dredge – the preference that the advertisement explicitly endorsed – than were control group members.

General Electric created the campaign to convince people that the E.P.A should not force the company to dredge the Hudson. Table 5.2a shows that the mean score of the control group is marginally pro-dredging. But exposure to one advertisement (with text) was enough to swing opinions to reject this choice.

It is important to note that these findings are more or less consistent whether it is the Sierra Club or General Electric who sponsors the advertisement. There is some suggestion that the Sierra Club has a stronger impact on changing opinions than General Electric. The fourth column in the vote measure shows that the dive advertisement in the General Electric condition is not significantly different from the control group. The average of the two Sierra Club mean scores is more negative than the General Electric scores. Nevertheless, looking at the overall pattern – of significantly different scores in both sponsorship conditions – indicates consistent rather than conflicting results.

What this means is that interests can alter public opinion to favor their positions on issues of public policy. In this case, the findings can be considered robust because the textual experimental conditions are significantly different from the control group – a group that was not exposed to any experimental condition. Second, the results persist regardless of whether it is an environmental group or an industry organization that is promoting a no-dredging opinion. In this case we would expect the Sierra Club to be the more credible of the two groups in endorsing the anti-dredging stance. The financial interests of General Electric, one would expect, would make their anti-dredging position appear less sincere and mitigate their ability to manipulate opinion. This is not the case.

General Electric-sponsored advertisements – while not as robust as the Sierra Club effects – are still able to convince people to reject dredging.

If there is evidence that textual advertisements influenced opinions, there is no such evidence for the photograph-only advertisements. As Table 5.2a illustrates, each of the image conditions – both the *dive* and *dredge* advertisements without text – show no significant opinion change from the control group. Although the mean of the dredge picture condition is against dredging, the difference from the control group is insignificant ($t = .99$, $p = 0.33$).

Further examination of the beliefs and belief importance items will confirm these findings, but without any significant difference in opinion it is difficult to argue that photographs in and of themselves are meaningfully framing dredging issue. When we compare the results on the photographic conditions with the textual conditions, the conclusion is clear: text can influence opinions as can text and photographs. Photographs, on the other hand, cannot alter opinions on their own.

Effects of Advertising Conditions on Belief Importance

Whereas some scholars argue that framing effects work simply by altering the accessibility of considerations (e.g. Zaller, 1992) others (Nelson, Clawson, Oxley, 1997; Nelson, Oxley and Clawson, 1997; Nelson and Oxley, 1999; Druckman, 2001) maintain that framing effects are dependent on the underlying values and considerations that people actually deliberate upon at the time of a decision. The first perspective is a more mechanical process consistent with priming – simply reflecting the accessibility of certain “considerations.” Nelson and colleagues expect that even though people may not

have consistent political ideology and attitudes, their underlying values are an important part of how framing does or does not affect their reported opinions.

According to Nelson and Oxley (1999), framing works by influencing the relative importance of different considerations. These considerations are believed to be persistent and long-standing abstract attitudes or beliefs that are made relevant by the presented policy choice. A frame works by making one value or consideration more relevant than the other at the time of decision. If framing is operative in this experiment (or at least this version of the framing model) then the different experimental conditions should evince different patterns of what values or considerations people consider important in making a decision.

There are several ways to measure whether the advertising conditions influence the relative concerns that people consider when forming their opinion. The most straightforward approach is to compare the control group to each experimental condition. Another is to compare the means of each experimental grouping. Unlike opinion change measures, the experimental conditions are expected to elicit a variety of different considerations. Each advertisement may elicit a different set of weightings among the participants' sets of values.⁷⁸

An initial glance the belief importance items in Table 5.2a show that there is variety in the way different conditions influence how people consider the issue. Table 5.3

⁷⁸ I screened each category of the belief and belief importance variables for outliers. The only variable which included severe outliers was the belief importance item on the health of family members. I removed the severe outliers and re-examined the data. This changed the results somewhat, but in a misleading way. By removing all severe outliers, the standard deviation of the control condition of the *family* variable was reduced to zero. The result was that the mean for every condition of the family variable except for the dredge advertisement with text and photograph (standard deviation was also zero) was significantly different from the control group. I concluded that the cases defined as outliers were more an artifact of the importance rating scale than they were distracting data, so they were retained in the analysis.

illustrates the relative importance placed on the particular consideration in each advertisement condition. While the table is little more than illustrative, it does show some variation in the comparative importance of considerations for the different experimental conditions. Generally speaking, the relative importance of each of the values follows a similar pattern, but participants in the dive conditions – when text is present – do report a noticeably distinct order of considerations.

Table 5.3: Ratings of Belief Importance Items (as Reflected by Mean Score)

Conditions	Control	dredge text/image	dive text/image	dive text	dredge text	dredge image	dive image
Family	1	1	1	1	1	1	1
Environment	2	2	4	3	2	2	2
pollution	3	3	3	2	3	3	3
intrinsic	4	4	5	5	4	5	4
people	5	5	2	4	5	4	5
business	6	6	6	6	6	6	6

Returning to Table 5.2a we can see that these initial findings are repeated in a series of difference-of-means tests. The participants in the dive conditions, especially the text-only advertisement, report higher concern for the intrinsic right of the environment to be free from pollution than those of the control group. At the same time, they report higher concern for the land rights of people. Likewise, participants in the text and photograph condition express higher concern for the land rights of people than those in the control group.

These results suggest that the dive advertisement conditions heightened the concerns that viewers had for both land rights and pollution in the environment. Substantively, this means that the dive advertisement raised the importance of two considerations. Participants appear to consider some combination of land rights and intrinsic rights of the environment as significantly more important than those people who did not see the advertisement.

The text-only participants were the only experimental condition to have a mean rating of pollution as the second most important consideration. Interestingly, the advertisement appears to be working not by diminishing the importance of family/health or environmental considerations – but by pairing these concerns with others. It is as if those who devised the campaign knew that environmental concerns could not be replaced, but they might successfully be paired with new (and more industry-friendly) considerations.

If the text experimental conditions show some evidence of influencing the relative value of considerations that people use to make political decisions, the (exclusively) photographic conditions do not. Looking down the fifth and sixth column of Table 5.2a we can see that the means do not significantly differ from the control group means.

Surprisingly, as well, there is slim evidence of source-related framing effects. In Druckman's (2001) work, he showed that certain elites faced constraints in how they are able to frame an issue and thereby manipulate citizens' opinions. He showed in separate experiments that a credible source (Colin Powell and *The New York Times*) was able to influence opinion and belief importance measures while a non-credible source (Jerry Springer and *The National Enquirer*) was not. If source-constraints were in evidence

here, one would expect to see that General Electric faced constraints in its ability to manipulate opinions, whereas the Sierra Club did not.⁷⁹ Except for one vote measure, we do not observe any difference in the groups' abilities to change opinions. The Sierra Club tends to effect a larger opinion change (especially in the dredge advertisement condition), but it is more important to note that General Electric is not constrained in its ability to significantly change opinions from pro-dredging to anti-dredging.

The only support for source-related framing effects can be found in the sources' impacts on belief importance items in Table 5.2b. General Electric advertisements do not appear to have a significant and observable impact on the relative importance of belief importance items, whereas the Sierra Club-supported dredge advertisement appears to significantly increase the importance of land rights considerations. The impact itself is quite interesting because it suggests that the Sierra Club is able to have a stronger impact on considerations that would usually not be associated with the political objectives of the organization. The significantly higher rating of land rights considerations indicates that people who saw the Sierra Club's dredge advertisement reported greater concern with land rights in making their decision about dredging. Evidence suggests, however, that this may be more an artifact of the small sample size than anything else. The General Electric advertisement is itself verging on significance ($t=-1.637$). The magnitude of the General Electric mean score (7.240) is a full point away from the mean score. There are comparatively fewer participants in the General Electric condition ($n = 25$) than the Sierra Club condition ($n = 29$). In fact, if we run the difference-of-means tests with the same variance and add four observations the results are significant.

⁷⁹ In this particular issue, one expects that General Electric's material interests (which were made apparent in the newspaper article that everyone read) make it the less credible source in lobbying against dredging.

Taken together, the slight difference in relative importance and the difference-of-means tests are consistent with the findings reported by previous research (Nelson, Clawson, Oxley, 1997; Nelson, Oxley and Clawson, 1997; Nelson and Oxley, 1999). Consistent with my hypotheses, public lobbying advertisements that include text appear to influence how people form and adjust their preferences on policy issues. More specifically, the difference-of-means tests suggest that the advertisements with text are not only influencing opinions but are broadly influencing the priority of the concerns people presumably use in making policy decisions.

Effects on Belief Content

Framing theory suggests that political communication influences opinion change not by changing the content of beliefs themselves, which would be considered persuasion, but by influencing the relative salience of values that are considered important at the time that we make our judgment. If framing theory holds, beliefs are expected to remain constant across the experimental conditions. We would anticipate little or no difference between belief content in the experimental conditions and the control group. This is for the most part supported. Except for the belief that General Electric will be adversely affected by the ruling to dredge the beliefs remain unchanged across the conditions.

According to the last row and third and fourth column of Table 5.2, respondents report beliefs about the impact on General Electric that are significantly different than the control group. For the other two belief measures, however, there is no evidence of belief change.

The fact that the advertisement intensifies the belief that General Electric will be adversely affected is hardly surprising. The copy in both advertisements both stress the fact that dredging will be disruptive. The advertisements are clearly providing information to the participants about how dredging will be disruptive. Consistent with earlier research (Nelson and Oxley, 1999) variations in objective information can lead to slight belief change without enervating framing effects. We could hardly expect the belief to be impervious to change if participants get more information about possible detriments of dredging.

When we look closer, this appears to be the case. The results indicate that text-only advertisements are not actually changing participants' minds. The statistical difference we observe is one of degree, not of valence. The control group believes that the effects will be negative; the text-only participants just tend to believe that the impact will be more negative.

Framing Process Measurement

So far the results indicate that the experimental conditions with text significantly influence participants' opinions. Advertisements – whether they are sponsored by environmental groups or industrial interests – are successful at convincing participants to oppose dredging. Those exposed to advertisements with text are significantly more likely to reject the decision to dredge the Hudson. Likewise, the priorities participants assign to beliefs that relate to environmental protection are significantly influenced by advertisements with text. In short, there is evidence of framing effects for people exposed to advertisements with text.

Photographs do not appear to exhibit similar effects on people. Participants who did not have text in their advertisements expressed opinions that are statistically undistinguishable from the control group. Advertisements that had only photographs did not, moreover, influence any apparent change in belief importance items.

Source effects appear to be minimal. Advertisements sponsored by General Electric and the Sierra Club both changed opinions. Somewhat at odds with Druckman's (2001) source-based framing effects hypothesis, General Electric was almost as successful as the Sierra Club at convincing participants to reject dredging – even though they had obvious financial motives for doing so.

Finally the results show that there are small effects on the content of beliefs relating to the impact on General Electric. Taken together, evidence suggests that advertisements with text are framing the public issue in much the same way as has been suggested by Nelson and Oxley (1999). Image-only advertisements, however, do not appear to frame the dredging issue for participants.

I will now proceed to a causal modeling analysis. Druckman (2001) and Nelson et al. (1999, 1997) use path analysis to outline how considerations and belief content are instrumental in opinion change. Specifically, Nelson and Oxley write that causal modeling will show: “(1) how belief content and belief importance contribute to issue opinion; and (2) whether or not belief importance and belief content mediate the effect of framing on opinion” (1999, p. 1048).

Unlike this earlier work, my experiment is a factorial design, and does not include a single dichotomous framing condition. Because of this, I cannot easily or clearly use the same path analytic technique. In order to clearly illustrate the mediational process of

framing and compare the effects that print and photographic conditions have on belief importance, belief content and opinion, I will conduct a series of regressions that essentially replicates the path analysis procedure.

I will begin by regressing an opinion variable on a series of models that include by iteration 1) demographic control variables; 2) experimental conditions; 3) beliefs; 4) cue givers; and 5) belief importance measures. Following this series of models, I will regress each of the belief measures and then the belief importance variables on demographics and then the experimental conditions.

I aim to provide a reasonable approximation of the mediational analysis used in previous framing research with the expectation that the regressions will illustrate how the various framing conditions, belief content measures and importance of various environmental considerations affect the participants' overall opinions. I expect that by comparing goodness of fit measures and analyzing partial slope coefficients and their levels of significance I will be able to infer a process through which framing works or doesn't work in the various advertising conditions.

Belief Importance Measures

Before proceeding to the mediational analysis, I must clarify some methodological decisions I made in the measurement of belief importance. First, there were concerns that the three environmental measures (*environment*, *intrinsic* and *pollution*) were capturing the same concern or consideration. Cronbach's alpha for all three variables provides confirmation ($\alpha = .826$). To adjust for this, the three environmental concern variables were converted into a single scale (*environmental scale*).

I also was concerned with how belief importance was defined. Jaccard et al. (1995) outline multiple methods for the assessment of belief importance. Comparison of these various methods reveals that the measures do not correlate very well with each other (Jaccard, Brinberg and Ackerman, 1986; Jaccard and Sheng, 1984). As such, the interpretation has been that belief importance measures are not dimensional and each measurement strategy accounts for different aspects of belief importance (Nelson and Oxley, 1999, p.1044).

The conventional approach (Nelson and Oxley, 1999; Druckman, 2001) has been to use a ranking procedure for the competing values, whereby the participants are forced to identify the relative priority of a set of competing values, ideas or considerations.

I did not force participants to rank order the considerations. Instead, I simply asked them to rate how important each consideration was in making up their mind about the issue. Not forcing participants to identify a specific rank-ordering of values has advantages and disadvantages. Nelson and Oxley (1999) argue that it is a political reality that individuals must determine the relative priority of competing values or ideas. This seems sensible, but then again, so does the alternative. While framing apparently works by highlighting some considerations and diminishing others, there is nothing to suggest that the concepts or ideas are entirely discrete and unrelated to each other. There may, in other words, be some conflict or combination of values that are elicited by a frame. A participant exposed to a certain frame may indeed feel that choosing a single consideration as the most important is inaccurate or artificial. He may in actuality have made the decision with equal concern for more than one consideration, like land rights and environmental protection.

I have therefore decided not to force participants to rank order considerations, but rather rate their importance. The resulting scale is useful as a measure of how important participants consider a range of environmental, health and welfare, business and land rights considerations. In its raw form, however, the ratings are not an ideal way to measure framing effects.

Nelson et al. (1997) argue that frames “affect opinion by selectively enhancing the psychological importance, relevance, weight accorded to specific beliefs with respect to the issue at hand” (p.1043). They write further that “while frames may sometimes determine what’s at the top of the head, their real contribution to opinion is in establishing which of the many possibly competing considerations at the top of the head should assume priority in one’s opinion.” Framing, in other words, is a hypothesized process by which information makes one consideration (or in this case considerations) more important than others.

If we accept this definition of the psychological process of framing, a measure used to appraise framing effects should not be concerned with what participants consider least or third-most important, but the considerations that they consider have primary importance. If judgments are influenced by values or belief items that have priority, what is the significance of a consideration if it is rated fourth, fifth or least important? It seems reasonable that based on the definition above, if our aim is to gauge framing effects, the measurement of belief importance items should only aim to account for the values that the participants consider most important. Any other data is theoretically spurious and quite possibly taints the results because it considers a ranking of third or fourth as significant as a ranking of first or second.

With all of this in mind, I have for the mediational analysis created a measure of belief importance items that is dichotomous. For the individual belief items, I have assigned the value of one if the participant rated the consideration most important, and zero otherwise. This measure accomplishes two things. First, the dichotomous variable captures whether or not the participant considers the belief to have priority in how she forms her opinion. Second, by not forcing a rank-order the dichotomous variable permits several beliefs to share priority. The scaled variable of environmental concern is a little different. Because it is a combination of three individual measures, the variable is not dichotomous but a four-point (zero to one) variable. If one of the environmental concerns is listed as most important, for example, the scaled variable is assigned a score of .333. Overall, the loss of information, I maintain, is a necessary to remain accurate to the theoretical construct. Regression results based on the original continuous variable are included in Appendix G.

Opinion as Dependent Variable

The results of the first set of regressions are shown in table 5.4.⁸⁰ Models one through five display the results of regressing opinion on an increasing array of independent variable sets: demographics; experimental conditions; belief content; cue givers; and belief importance items. The experimental conditions, added in model two, are dichotomous variables. For each model I have listed the goodness of fit statistics, partial slope coefficients and t-test statistics.⁸¹ The dependent variable is opinion, which

⁸⁰ OLS regression was used to estimate each model for the first two sets of dependent variables.

⁸¹ Dredge is coded one if the participant viewed a dredge advertisement that included text, images or both, and zero otherwise. Dive is coded one if the participant viewed a dive advertisement that included text, images or both, and zero otherwise. Image is coded one if the advertisement contained any image and zero otherwise. G.E. is coded one if the ad is sponsored by General Electric and zero otherwise. Sierra Club is coded similarly.

is the mean of the *vote* and *support* measures ($r = .892$).⁸² Overall the results conform to the findings outlined in the difference of means tests but add some interpretive power.

The experiment did not permit the inclusion of a generic text variable as it did a photograph-only variable. Variation of the text condition was totally captured by *G.E.* and *Sierra* together. Because ad sponsorship was included in all advertisements with text and only in advertisements with text, there is not enough variation to measure a separate text only variable.⁸³ Consequently, the *G.E.* and *Sierra Club* variables together can be interpreted as a measure of generic text effects.

Overall, the findings in Table 5.4 indicate that belief importance items capture more variation of participant opinion than do any other variable (except the experimental conditions themselves). This means that the belief importance items are driving opinion change more than either of the other two independent variables. In terms of the models constructed here, variation in opinion is above all captured by variation in experimental conditions and the belief importance measures. These findings confirm the expectations of the framing hypothesis. The experimental conditions do change the way people think and that change appears to be driven by belief importance items above all else. Consistent with the argumentation above, belief items appear to explain little variation.

⁸² The opinion measure has been constructed according to earlier research (Nelson and Oxley, 1999; Druckman, 2001).

⁸³ This is a case of the dummy variables exhausting all variation. Instead of using two sponsorship variables, I could have included a text variable with a *G.E.* or *Sierra Club* variable but the results would have been exactly the same. In the case of a *Sierra Club* variable and a text variable, the effect of the *Sierra Club* sponsorship would have been captured by adding the text effect with the *Sierra Club* effect. The text effect (*Sierra Club* held at zero) would have captured the effect of *General Electric*. Substantively there would be no sensible interpretation of the *Sierra Club* variable held at one and the text variable held at zero. Using any variation of two of the three variables results in the same slope coefficients and coefficient of determination.

Table 5.4: Opinion as Dependent Variable (from anti-dredging, coded negative, to pro-dredging, coded positive)

	Model 1		Model 2		Model 3		Model 4		Model 5	
Adjusted R²	.010		.127		.153		.192		.245	
	b	t	b	t	b	t	b	t	b	t
Demographics										
Partisanship	0.047	0.82	0.067	1.23	0.037	0.68	-0.006	-0.10	0.003	0.06
Race	0.037	0.10	0.199	0.56	0.155	0.44	-0.068	-0.20	0.109	0.32
Interest	0.127	2.17	0.162	2.89	0.115	1.91	0.104	1.74	0.094	1.63
News	-0.004	-0.07	0.010	0.20	0.019	0.37	0.007	0.13	0.020	0.41
Gender	-0.224	-0.92	-0.217	-0.92	-0.266	-1.13	-0.360	-1.55	-0.390	-1.72
Conditions										
Dredge			-0.622	-1.28	-0.437	-0.89	-0.614	-1.27	-0.643	-1.36
Dive			-0.796	-1.65	-0.649	-1.34	-0.722	-1.51	-0.737	-1.59
G.E.			-0.380	-1.16	-0.368	-1.14	-0.334	-1.05	-0.442	-1.38
Sierra			-0.877	-2.61	-0.871	-2.63	-0.870	-2.69	-0.913	-2.85
Image			0.454	1.71	0.323	1.21	0.352	1.35	0.426	1.67
Beliefs										
PCBs					-0.182	-1.32	-0.122	-0.90	-0.091	-0.68
Health					0.051	0.38	0.061	0.47	0.093	0.73
G.E. Impact					0.215	2.46	0.216	2.49	0.196	2.30
Cue Givers										
G.E.							-0.154	-3.05	-0.100	-1.84
Env. Groups							0.096	1.75	0.055	0.99
Belief Importance										
Environ. scale									0.762	2.53
Business									-0.455	-1.16
Family									0.340	1.18
Land Rights									-0.418	-1.62
N	168		168		168		168		168	

Note: Values in bold are significant at $p < .10$ level, two-tailed test. All measures have been coded as noted above. The dependent variable is coded so that higher values reflect a pro-dredging opinion and negative values reflect an anti-dredging opinion. Demographics are as follows: partisanship coded 0 (strong Republican) to 6 (strong Democrat); race coded 1 (white) or 0 (other); interest, which measures self-reported interest in the subject, coded 1 (extremely uninteresting) to 9 (extremely interesting); gender coded 0 (male) and 1 (female).

Again, results show that advertisements with text appear to change the way people think about the dredging issue. Clarifying the results above somewhat, the findings here indicate that there are obvious differences in how the two sources influence opinion. Participants in the Sierra Club advertisement condition are significantly more likely to reject dredging than any other experimental condition.

Demographics

Demographics explain little variation. In the first model of Table 5.4, the coefficients show that the demographics are poor predictors of participants' opinions. The demographic-only model explains just one percent of the variation in opinion and only one of the variables (interest) has a statistically significant coefficient. The interest variable is significant for the first four models and then drops out in the fifth model. This suggests that the variation in opinion predicted by the interest variable is better captured by the belief importance items. In the final model, gender becomes a marginally significant predictor of the respondents' opinions on dredging.

The fact that demographics explain little variation in opinion is a good general indicator that the experiment has been conducted properly. It shows us specifically that age, gender, race, interest in news and partisanship have very little impact on whether one supports or rejects the proposal to dredge the Hudson. In any experiment, one would hope that the manipulations and experimental conditions would do more to influence the dependent variable than demographics. Goodness-of-fit statistics show that this is the case.

Experimental Conditions

Experimental conditions explain most of the variation in opinion, as is made evident in the second model of Table 5.4. Adding the experimental conditions to the model causes the Adjusted R^2 to jump by over 11 points (.127). The experimental conditions have nearly twelve times the explanatory power as the demographics alone.

The Sierra variable is a statistically strong predictor of opinion variation. The negative and statistically significant slope coefficient ($b = -0.877$, $t = -2.61$) shows that those participants who took part in the Sierra condition were more inclined to reject the decision to dredge than the control group (which is captured by the intercept). In fact, because the control group is largely ambivalent about the dredging decision ($b = -0.023$), controlling for the demographic and experimental conditions, the Sierra advertisement alone appears to influence a negative opinion on dredging.

This is worth discussing further. What this shows is, contrary to what the difference of means tests suggested, General Electric advertisements are not directly impacting participants' opinions towards dredging. Once we control for demographics, it is only the Sierra Club advertisement that actually has a significant impact on the participants' opinions.

In order to clarify the discrepancy, I investigated further. Holding *advertising sponsorship* constant, I regressed opinion on the remaining experimental conditions and the demographic variables. When I exclusively analyze those participants exposed to Sierra Club advertisements, only the *dredge* condition is marginally significant ($t = 1.74$). When I examine the participants who were exposed to the General Electric advertisements, none of the conditions are significant. Interestingly, however, the

partisanship variable becomes very significant ($b = .262$, $t = 2.47$). This suggests several things. First, it confirms what is suggested by Table 5.4. General Electric advertisements are not *directly* changing opinions. Second, it indicates that the results of the General Electric conditions may be corrupted due to an oversampling problem.⁸⁴ Still, there's no evidence that a greater percentage of Republicans in the General Electric conditions are creating that partisanship effect.

Beliefs

When we add beliefs to the right side of the equation, the explanatory power of the model increases by just under three percent (Adjusted $R^2 = .153$). Beliefs moderately influence opinion change. In the difference of means test, the participants of text-only conditions were significantly more likely to believe that General Electric would be negatively impacted by the decision to dredge. Here again, it is only this belief that is significant in influencing opinions.

In this case, the relationship is in the expected direction. The positive and significant coefficient ($b = .215$ $t = 2.46$) indicates that someone who believes that G.E. will be adversely impacted will tend to reject dredging. Conversely, people who believe that damage to General Electric will not be that severe are more likely to support the idea that G.E. should be forced to dredge the Hudson.

Cue Givers

The fourth model includes cue givers as independent variables. The coefficient of determination shows that the model explains a little under four percent more of the variation in opinion (Adjusted $R^2 = .192$). Partial slope coefficients indicate that the

⁸⁴ Descriptive statistics bear this out further. In the Sierra Club conditions, 28% of the participants identify themselves as Democrat. In the General Electric conditions, only 14% are self-identified Democrats.

claims of General Electric are a significant influence in the expected direction ($b = -0.154$ $t = -3.05$). Participants who reported that the claims of General Electric are important in evaluating the issue of dredging tend to reject the proposal to dredge.

Cue-giving effects appear to be stronger than beliefs themselves. For instance, we would expect participants in the control group who say that General Electric is not at all important in their decision about dredging (1 in a 1 to 10 scale) to lean towards dredging (0.725) whereas a participant who reports that General Electric is an important consideration will lean towards not dredging (-0.815).⁸⁵

Belief Importance

The final model in Table 5.4 includes measures for the value considerations or belief importance items. The inclusion of the variables increases the explanatory power of the model (Adjusted $R^2 = .245$). The relative increase in explanatory power is worth noting.⁸⁶ In comparing the Adjusted R^2 measures, one can see that belief importance measures explain nearly twice as much variation as do the belief items. This suggests that, in agreement with Nelson and colleagues' research on framing, belief importance items are important drivers of participant opinion, controlling for the experimental conditions.

In this case, the only belief importance item that is a significant predictor of opinion on the dredging issue is the scaled environmental concern variable. Coefficients listed in the final column of Table 5.4 suggest that an individual who is in the control

⁸⁵ All other variables are held at zero.

⁸⁶ Still, the total explanatory power of the final model is quite moderate. Only 25% of the variance in opinion is explained by all these variables. This indicates that there may be some important predictor variables missing and unobserved or conversely that opinion on a non-salient issue like this is a heavily stochastic decision.

group and lists environmental concerns as his/her most important concern is expected to be of the opinion that G.E. should be forced to dredge the Hudson.

Looking up at the experimental conditions, one can see that the *Sierra* variable has remained significant across all of the models. The fact that it remains significant in the final model, even after the belief importance items have been included, suggests that the Sierra Club's impact on opinion is not a framing effect. As Nelson and Oxley (1999) and Druckman (2001) point out, the experimental condition's effect on the opinion of the respondent should be mediated by the belief importance items.⁸⁷ If the condition were framing the dredging issue for the participants, we would expect the experimental conditions to diminish in significance as the belief importance items are added. Evidently, this is not happening.

It is also worth noting that according to the fifth model, the photographic condition is moderately significant ($p = .098$) in influencing the opinions of participants. Photographs appear to cause opinion change, but only after we have controlled for belief importance items (in addition to the full range of demographics, cue givers and beliefs). Photographs move opinion towards forcing General Electric to dredge and in the opposite direction of every other condition.

Again, like the Sierra Club sponsorship condition, it doesn't appear that the photographs are framing the public policy issue. In previous path analytic work (Nelson and Oxley, 1999), evidence of framing is inferred when the effects of the framing condition on the dependent variable (opinion) are mediated by belief importance items. In

⁸⁷ It is of course possible that I have not included all the relevant belief importance items in the final model and the effect of the Sierra Club condition is working through those missing considerations.

fact, the opposite is happening here. The condition (photograph) only becomes significant once we have included and controlled for the belief importance items.

Photographs influence opinion, but they do not appear to do so through belief importance items. Photographic effects – at least in the case of this experiment – are moderate and appear to be exclusive of influence through belief importance items (and all the other independent variables). Photographs do not then appear to be influencing opinion in the manner consistent with the framing effects hypothesis as suggested by Nelson et al. They may be moderately influential on opinion, but they do not appear to cause opinion change by framing the dredging issue.

Beliefs as Dependent Variable

The next stage in this mediational analysis is to determine what sort of impact the experimental conditions have on beliefs themselves. The findings outlined here are consistent with the difference of means tests and similar to those reported by Nelson *et al.*. The results, presented in Tables 5.5 to 5.7 show that the experimental conditions have very little, if any, impact on either the belief that PCBs are destructive to the environment or that PCBs are dangerous to people.

Goodness-of-fit statistics tell the story here. In terms of the first belief (PCBs as dangerous to environment) the Adjusted R² drops by a percent when the demographic model is expanded to include experimental conditions. In the second belief item (PCBs as dangerous to health) there is a minuscule increase in explanatory power. A diminishing or static Adjusted R² is evidence that the added variables add nothing to explain the dependent variable. We can therefore be fairly confident that none of the experimental conditions influence the beliefs that PCBs are destructive or dangerous.

Table 5.5: Experimental Conditions' Impact on the Belief that PCBs Are Dangerous to The Environment

Adjusted R ²		.137		.127	
		b	t	b	t
Demographics					
Partisanship		-0.082	-2.22	-0.078	-2.07
Race		0.034	0.14	0.069	0.28
Interest		-0.184	-4.90	-0.192	-4.98
News		-0.017	-0.50	-0.023	-0.65
Gender		0.014	0.09	-0.009	-0.06
Conditions					
Dredge				-0.216	-0.65
Dive				-0.251	-0.75
G.E.				0.162	0.71
Sierra				0.098	0.42
Image				-0.158	-0.86
N		168		168	

Note: Values in bold are significant at p<.10 level, two-tailed test.

Table 5.6: Experimental Conditions' Impact on the Belief that PCBs Are Dangerous to Health

Adjusted R ²		.080		.081	
		b	t	b	t
Demographics					
Partisanship		-0.074	-1.92	-0.068	-1.76
Race		0.017	0.07	0.000	0.00
Interest		-0.139	-3.57	-0.148	-3.71
News		-0.008	-0.22	-0.005	-0.14
Gender		-0.243	-1.49	-0.203	-1.21
Conditions					
Dredge				0.004	0.01
Dive				0.041	0.12
G.E.				0.250	1.07
Sierra				-0.092	-0.39
Image				-0.203	-1.07
N		168		168	

Note: Values in bold are significant at p<.10 level, two-tailed test.

Table 5.7: Experimental Conditions' Impact on the Belief that Dredging Decision Will Impact General Electric (From Negative Impact, Low, to Positive Impact, High)

Adj. R ²	.030		.062	
	b	t	b	t
Demographics				
Partisanship	0.080	1.62	0.087	1.78
Race	0.144	0.46	0.264	0.83
Interest	0.065	1.30	0.094	1.86
News	-0.056	-1.22	-0.057	-1.24
Gender	0.360	1.72	0.266	1.25
Conditions				
Dredge			-1.043	-2.39
Dive			-0.904	-2.09
G.E.			0.021	0.07
Sierra			0.080	0.26
Image			0.523	2.19
N	168		168	

Note: Values in bold are significant at $p < .10$ level, two-tailed test.

On the other hand, and in concordance with the results of the difference of means tests, experimental conditions do significantly impact the belief that dredging will have an effect on General Electric. The goodness-of-fit statistics show that by including experimental conditions within the model, the predictive accuracy of the variation of the dependent variable is doubled.

Partial slope coefficients corroborate this interpretation. Just as the difference of means tests indicated, the participants in the dive and dredge conditions are significantly more likely to believe that the decision to dredge will have a negative impact on General Electric. Looking at the other coefficients, we can see this belief change is largely independent of whether the participant is exposed to the G.E. or Sierra Club-sponsored conditions. The results show that the advertisement condition (*dredge* and *dive*) have a

significant negative impact on opinion, sponsorship conditions have no significant influence and photographs have a positive impact.

The net effect here is that photographs create significant effects by their contradictory influence. Photographs have a significant and mitigating effect on the belief that General Electric will be damaged by being forced to dredge the Hudson.⁸⁸

Participants in the control group believe on average that dredging will negatively affect G.E.; participants in the *dive* and *dredge* conditions believe this more strongly.

Photographs, however, appear to change these beliefs. Participants exposed to image-only advertisements, for example, will still perceive the impact on General Electric as negative (-0.453) but that is less negative than the expected belief of the control group (-0.949).⁸⁹

Belief Importance as Dependent Variable

In order to get an empirical measure of whether the experimental conditions influence the relative importance of participants' considerations when they form an opinion on dredging, I also regressed the four belief importance items on two separate models – demographics and the experimental conditions. This set of regressions should provide results from which we can determine whether any of the conditions are indeed framing the policy decision for the participants. Because dependent variables are dichotomous (in the case of the *family*, *business* and *land rights* variables) and categorical

⁸⁸ This interpretation is supported by further inquiry. To further understand the results printed above, I regressed the belief that G.E. would be negatively impacted on all the independent variables *except* the photographic condition and all significant coefficients drop out. The Adjusted R^2 falls to .039. This indicates that it is the contrary effect of the photographic condition that improves the models goodness-of-fit statistics and creating significant effects in the *dredge* and *dive* conditions. Photographs, in other words, are creating the significant effects here.

⁸⁹ Belief values are calculated from their +3 to -3 scale, holding all other variables constant at zero.

in the case of the *environmental scale* variable) I used logit and ordered logit regression to estimate the models. Results are presented in Tables 5.8 and 5.9.

Overall, evidence suggests the advertising conditions have an impact on the relative importance of these four belief items. In each case, adding experimental conditions to the model increases the goodness-of-fit statistics. Even though the total variation explained by the conditions is modest, the comparative explanatory power of each model increases substantially when experimental conditions are included as predictor variables.

Table 5.8: Experimental Conditions' Impact on Family and Business Belief Importance Measures

Dependent Variable:		Family				Business			
		.029		.078		.056		.127	
	Pseudo R ²	b	z	b	z	b	z	b	z
Demographics									
Partisanship		-0.006	-0.05	-0.032	-0.28	0.031	0.24	0.020	0.14
Race		-1.294	-1.21	-1.257	-1.15	-0.689	-0.93	-0.802	-0.99
Interest		0.086	0.77	0.108	0.94	-0.208	-1.42	-0.186	-1.19
News		0.086	0.83	0.071	0.65	0.005	0.04	0.034	0.24
Gender		0.471	1.04	0.261	0.55	-1.010	-1.86	-1.051	-1.85
Conditions									
Dredge				-1.041	-1.03			-2.254	-1.46
Dive				-0.656	-0.65			-1.279	-0.86
G.E.				0.048	0.08			2.186	1.91
Sierra				1.405	1.80			1.555	1.31
Image				0.542	0.92			0.398	0.62
N		168		168		168		168	

Note: Regression models for *family* and *business* are estimated using logistic regression. Unstandardized coefficients are reported. Values in bold are significant at p<.10 level, two-tailed test.

Table 5.9: Experimental Conditions' Impact on Peoples' Land Rights and Environmental Scale Belief Importance Measures

Dependent Variable:	Peoples' Land Rights				Environmental Scale			
	Psuedo R ²							
	.036		.043		.018		.061	
	b	z	b	z	b	z	b	z
<i>Demographics</i>								
Partisanship	-0.012	-0.12	-0.019	-0.18	0.111	1.44	0.125	1.57
Race	1.618	1.52	1.610	1.50	-0.016	-0.03	-0.059	-0.11
Interest	-0.111	-1.09	-0.101	-0.97	0.133	1.64	0.104	1.22
News	-0.066	-0.71	-0.071	-0.75	-0.125	-1.68	-0.121	-1.57
Gender	-0.276	-0.66	-0.343	-0.79	-0.139	-0.42	-0.046	-0.13
<i>Conditions</i>								
Dredge			-0.456	-0.50			0.180	0.24
Dive			-0.231	-0.26			0.163	0.22
GE			0.152	0.26			1.210	2.40
Sierra			0.443	0.74			0.617	1.21
Image			0.302	0.62			-0.183	-0.48
N	168		168		168		168	

Note: Regression models for *people's land rights* are estimated using logistic regression. The environmental scale models are estimated using ordered logistic regression. In both cases, Unstandardized coefficients are reported. Values in bold are significant at p<.10 level, two-tailed test.

The probability coefficients corroborate these findings and further provide evidence that the experimental conditions with text appear to be framing the issue for the participants. The photographic condition remains insignificant in each of the four belief importance dependent variables. Text conditions, however, are significant in three of the four regressions. The Sierra Club condition is a significant predictor of whether or not a participant will list the health as a primary consideration in making up her mind about the dredging issue. The General Electric condition is a strong significant predictor of whether the participant will list business concerns and environmental considerations as their chief considerations.

The latter effect is interesting because it suggests that there may be empirical evidence of a boomerang effect here. Participants who are exposed to the General Electric condition are being influenced to consider environmental beliefs as more important – that is what the advertisement is encouraging, after all. What remains to be seen is if General Electric can leverage this value or consideration to work for its policy objectives – that is to support an anti-dredging position.

Because logit coefficients do not represent the slope of a linear estimation, they cannot be interpreted with the same precision as OLS coefficients. Still, the valence of the coefficients and the hypothesis testing statistics do permit some inference.

In the first half of Table 5.8, which estimates the likelihood that a participant will list personal and family health as the most important consideration, the Sierra Club coefficient is significant ($p < .10$) and positive. This suggests that people in the Sierra Club condition were significantly more likely to list health and welfare as their primary consideration. Likewise, the last two columns in table 5.8 show that participants in the General Electric sponsored advertisements were significantly ($p < .10$) more likely to list economic and business concerns as the most important consideration. Again, in the final columns of Table 5.9, the General Electric condition is significant ($p < .05$) and positive, which indicates that participants who observed an advertisement sponsored by General Electric were statistically more likely to list environmental concerns as their primary consideration.

Results in Tables 5.8 and 5.9 suggest that advertising conditions used in this experiment have an effect on the values a participant considers most important when making up his mind about dredging. Across the four separate sets of logit regressions,

textual conditions (both Sierra Club and General Electric) exhibit a significant influence on participants' rating of belief importance items. The influence is, for the most part, as we would expect. General Electric sponsorship influences the participant to perceive the problem with business and economic considerations in mind. The Sierra Club advertisements heighten participant concern for health and welfare. Curiously, however, the General Electric condition significantly heightens ecological concerns (measured by the scale variable).

Because the Sierra Club advertisements do not inspire the same raised concern for the environment and business that General Electric advertisements do (and conversely that General Electric does not have the same effect on health and welfare considerations that the Sierra Club does) we may infer that the participants are judging the advertisements' claims in context of their sponsorship. At the same time, however, this evidence also serves as an indication that framing effects transcend sponsorship conditions. Contrary to Table 5.4, where only the Sierra Club had direct effects on the participants' opinions, belief importance items are influenced by both General Electric and the Sierra Club.

Consistent with reporting bias in attribution theory (Eagly, Wood and Chaiken, 1978), the viewer who is told by the Sierra Club to be concerned about the environmental impacts of dredging would dismiss environmental concern because the Sierra Club is always going on about these things. Contrawise, the viewer who is told by General Electric that dredging is environmentally dangerous would be more alarmed because if General Electric is concerned about the environment it must be really destructive.⁹⁰ This

⁹⁰ Note that the decision to (implicitly) cede to the claims of General Electric with regards to the relative priority of environmental concerns goes unrecognized or unacknowledged by the participants. Table 5.2

is either strengthened or undermined by the findings that the Sierra Club condition heightens the concern for family health and welfare. The individual may, consistent with attribution theory, find the Sierra Club a more believable source of health information (than General Electric).

On the other hand, these results may not be a question of attribution as they are an artifact of the choice that framing theory predicts. It may be that the General Electric advertisement is more successful raising concerns about the environment because the Sierra Club sponsorship inspires health concerns to be primary. Contrary to the interpretation outlined above, the effect might not be one of credibility but rather one of what considerations are at the top of the mind. In concordance with framing theory, the Sierra Club condition might simply inspire more concern about health and welfare than it does concern about the environment.

Still, another alternative is that the Sierra Club advertisements present inconsistent information that inoculates the reader from any framing effects regarding the priority of environmental concerns. In this scenario, the reader is merely confused as to why the Sierra Club would be advocating not dredging the Hudson and that this confusion diminishes the environment as a consideration. This argument is undermined somewhat by the findings that Sierra Club sponsorship is a significant predictor of increased consideration of the health implications.

One complicating factor in the interpretation of these coefficients, however, is that the design of the experiment does not permit me to control for the effects of text as I can the use of photographs. Unlike the photographic condition, which can statistically be

shows that in every experimental condition (except the control group) participants rate the claims of general electric as the least significant consideration.

isolated from all other variations in the experimental conditions, the text condition is perfectly collinear with both the sponsorship variations. Any exclusive attribution of significant effects to the sponsorship of the advertisement would, therefore, be in error. Because I cannot control for the effects of text in the advertisements, I cannot say that these effects are the result of sponsorship alone. As such, the General Electric and Sierra Club sponsorship conditions should also be considered a measure of text impact and a confirmation of the difference-of-means tests discussed above.

Effects on Beliefs, Belief Importance and Opinion

Taking each of the regressions above into consideration, the following conclusions can be drawn:

Photographs influence limited belief change. Photographs appear to affect the belief that General Electric will be impacted by the decision to dredge. Participants in the photographic conditions tend to believe that the impact will be more positive than those in the control group or other experimental conditions without photographs.

Photographs have very moderate but direct influence on opinion change. Contrary to the results in the difference of means tests, the regressions discussed above show that photographs do have a direct effect, albeit very moderate, on opinion change. The results in Table 5.4 show that photographs, in contrast to all other experimental conditions, appear to influence people to support forcing General Electric to dredge the Hudson.

Evidence of limited belief change, which in turn influences opinions. While there is some evidence that beliefs have been changed by exposure to experimental conditions, the implications are fairly narrow. Only one belief – how General Electric will be

influenced by the decision to dredge – showed any evidence of influence. This belief, moreover, seems to be particularly impacted by the influence of photographs.

The above three conclusions permit me to sketch out a graphic model (Figure 5.1) of the implied role of photographic influence as indicated by the experiment. Photographs have a moderate but direct influence on opinion and they also mitigate the belief that General Electric will be negatively impacted. The net effect on opinion is consistent. All other variations held constant, Participants in the photographic conditions were more likely to support dredging. Figure 5.1 illustrates the significant influence of the photographic conditions on beliefs and opinion.

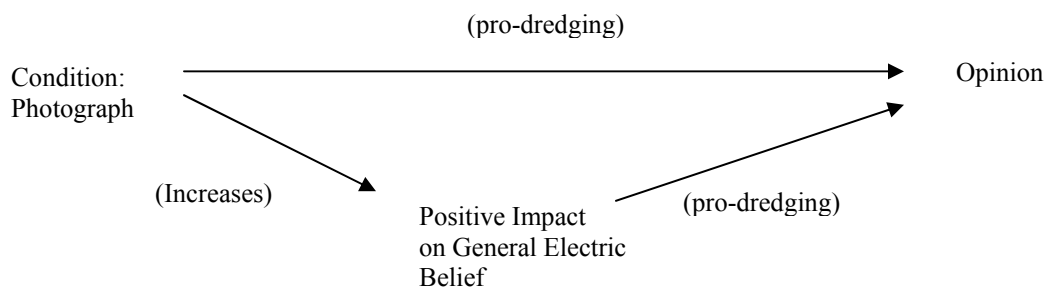


Figure 5.1: Images Influence Opinions

While photographs appear to influence a single belief and opinion on the decision to dredge, they do not influence any belief importance items. For this reason, I must conclude that photographs are not framing the dredging policy question for participants.

Evidence that belief importance items are influenced by experimental conditions.

The results presented in Tables 5.8 and 5.9 confirm that belief importance items are affected by the various experimental conditions. Goodness-of-fit statistics show that the

inclusion of the experimental conditions as predictor variables improves the predictive accuracy of the model in all four cases. Individual slope coefficients add corroboration that textual conditions are impacting belief importance items.

Only experimental conditions with text appear to influence change in belief importance. Tables 5.8 and 5.9 also show that text conditions affect which considerations have priority in the decision about dredging. Participants in the conditions in which General Electric was a sponsor were significantly more likely to list both business concerns and environmental concerns as primary considerations in making up their mind about dredging. Participants exposed to the Sierra Club sponsored advertisements were more likely to indicate that family/health concerns had priority. Photographs had no effect on belief importance items.

Sierra Club advertisements appear to directly influence policy opinions. Taking all of the above regressions into account, a rough picture of the mediational effects takes form. First, there is evidence of direct opinion change effects – that is, of opinion change directly attributable to the advertising conditions themselves. As Table 5.4 indicates, only the Sierra Club and Photographs directly cause opinion change. Direct influence of opinion is not evidence of framing. Framing involves the mediation of values and considerations. There still could be other belief importance items not included in the above models that are responsible for the opinion change.

Figure 5.2 illustrates the route to opinion change associated with participants who were part of the Sierra-Club-sponsored experimental condition. Arrows indicate significant effects. Although participants exposed to this condition tended to list personal and family health as a priority concern, this belief importance item did not display a

significant impact on the decision to dredge. Regressions demonstrate that the only significant effect the Sierra Club sponsorship condition had on the participants' opinions was direct. Participants in the Sierra Club conditions tended to accept the advertisements' entreaties more than others and were thus prone to reject the decision to dredge.

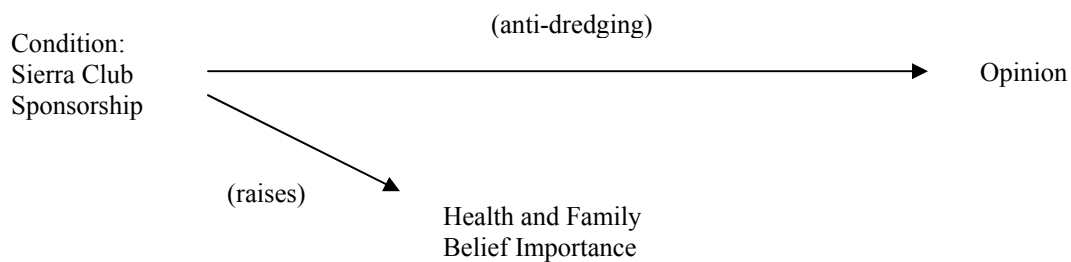


Figure 5.2: Sierra Club Manipulates Opinions Directly

But General Electric's apparent inability to directly influence participants to be anti-dredging does not constitute a source-related constraining effect as observed by Druckman (2001). In fact it may represent a constraint to more direct forms of influence, like conventional attribution effects (Eagly, Chaiken and Wood, 1978; Kelley, 1973). General Electric is inhibited in its ability to directly manipulate people because they appear to judge arguments based on quick (and largely unrecognized) heuristic evaluations (Popkin, 1991) on the apparent motivations of the claims-makers.

General Electric advertisements appear to indirectly influence opinions and provide evidence of framing effects. There is also, however, evidence that conditions are influencing opinions through belief importance items. The results presented in Tables 5.4, 5.8 and 5.9 reveal that, although comparatively subtle, we are able to trace indirect effects from advertising conditions (with text) to opinion change. Figure 5.3 illustrates the path

of indirect opinion effects from the General-Electric-sponsored condition. Arrows indicate significant effects. No arrow between the condition and opinion indicates insignificant effects. These results add empirical support to the argument that it is more politically effective for industrial interests to hide behind an anodyne sounding group like “Citizens for a Cleaner Hudson” than using their actual name in the pursuit of greenwashing.⁹¹

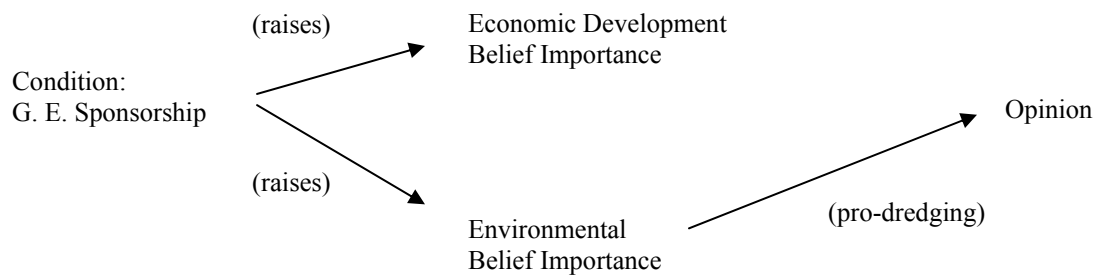


Figure 5.3: Indirect (Framing) Effects

Just as in Figure 5.2 the experimental condition exhibits an effect on belief importance items. In this case, the General-Electric-sponsored advertisement tended to elicit the statistically significant response that economic development and environmental concerns had priority in the mind of the participants. While both considerations appear to be heightened by the experimental condition, only the concern for environmental protection exhibits a significant effect on the participants’ final opinion.

⁹¹ This is something that General Electric began afterwards with the creation of the www.hudsonvoice.com website.

Results, suggest, therefore, that all else being equal, those participants who were exposed to the General Electric advertisement were statistically more likely to list the environment as a chief concern and this raised concern is in turn a significant indicator that the person will support dredging. This is clear evidence of framing operating precisely as Nelson and Oxley (1999) suggest. An advertising condition (General-Electric-sponsored advertisements) enhances the psychological importance of a consideration or belief (concern for environmental protection), which in turn are influential in making a decision about the issue at hand (dredging).

Consistent with the signaling model, these indirect effects indicate that the public appears to indeed act as a constraining force on the public lobbying efforts of interest groups. Elites are not uninhibited in their ability to manipulate public opinion. Kollman's contention is that such a constraint inhibits groups from engaging in this sort of artificial lobbying. The signaling model appears to be at least accurate in its estimation of the inherent difficulty in turning the public away from their purported preference. But in contrast to the assumptions of the signaling model, the mechanism of constraint is not a public that is fixed in its policy preferences. The effects here are evident: in response to a single advertisement, participants change their preferences. Consistent with the framing model, the General Electric advertising condition appear to cause certain values to appear more important (environmental concerns) and this has a consequent impact on participants' reported opinion. Only in this case, the opinion change is contrary to the explicit aims of General Electric.

These results appear to be most concordant – although not identical – to the source constraint hypothesis as proposed by Druckman (2001). Recall that Druckman

finds that source constraints present restrictions or moderating effects in the ability of some elites to frame. What we are observing here is more robust and akin to a framing boomerang effect mentioned earlier; General Electric's advertisements cause people to perceive the issue differently than the control group. Participants exposed to the General Electric condition are significantly more likely to see it as a problem that is primarily about environmental concerns. As such, they end up being more likely to make the decision to support dredging.

Source constraints are not limited to the moderating effects observed by Druckman. Some sources, because of contextual factors – in this case it appears to be the disingenuousness of General Electric's claim actually elicits a framing effect that works contrary to their explicit political objectives. The dredging decision is complex, too complex perhaps for most people to have specific policy opinions, but contextual information provides them with something to make sense out of the issue – and permits them to give an opinion. In this case the respondents appear to be weighing environmental concerns – which we can consider real, longstanding values – with the counterposing understanding that General Electric has a financial stake in the outcome. The result appears to be that respondents tend to make the decision that environmental protection is a more relevant concern from which to make this decision.

Framing Effects: Text and Photographs

Findings presented in the first half of this chapter indicate that there was evidence of framing effects in advertisements with text, but that no such evidence existed for photographic conditions. Comparison-of-means tests indicate that advertisements with text significantly influence participants' opinions and belief importance measures.

Participants in experimental conditions that included text exhibited significantly different opinions and displayed significantly different importance ratings for beliefs than did participants in a control group. Responses for photographic conditions were not statistically different from the control groups.

Inferential statistics presented in the second half of this chapter corroborate the findings outlined above and contribute evidence on the causal nature of how issue opinions are (re)constructed. Regressions presented in Tables 5.4 to 5.9 illustrate that belief importance concerns are influenced by the experimental conditions. They also show that advertisements with text have significant effects on the priority of specific belief importance items, including concern for the environment. The regressions further demonstrate that concern for the environment has a significant impact on how people make their dredging policy decision. Finally, the results show that advertisements without text do not influence belief importance.

Taken together, results indicate that framing effects are limited to advertisements that include text. Photographs may have influenced participants' opinions on the dredging issue, but the effect was comparatively minor. More importantly, there is no evidence that the influence on opinion was due to an effect on interceding considerations.

Chapter 6 -- Conclusion

In the preceding chapters I have examined the question of modal influences on the salience of environmental concerns in the aggregate public and policy action in Congress. I have also examined the influence of a real-world public lobbying campaign on the policy preferences of individuals, specifically whether and how a particular greenwashing campaign had an impact on the beliefs, relative importance of underlying values and the specific policy preferences regarding the dredging of the Hudson River.

I have found that photographs and text influence the salience of environmental concern – but that they do so differentially and they have distinctive effects on the public and policy makers. I have also found that policy preferences can be directed by text and images, but that, again, the modal effects are quite discrete. I have gathered evidence which suggests that greenwashing operates as the *socialization of conflict* – or more importantly as the diffusion of conflict. And finally, I have found that environmental public lobbying appears to be a strategic response to public opinion but whose effects are most evident on policy action. What follows is a summation of my findings as they apply to my research questions and then a discussion of the general implications.

Research Questions

In the first chapter, I introduced two precise questions which would form the core of the empirical investigation in this dissertation. The first of those research questions asked:

- (1) What influence do the news media's photographic and textual agendas have on the salience of environmental concerns in the public and policy action in congress? If the photographic and textual agenda both influence public and policy salience, do the modalities have different (or identical) effects on the salience in policy action and public opinion?

The analysis conducted in Chapter four permits an unequivocal answer to this question. The textual and photographic agendas both have some type of influence on either public concerns or policy action. Text and photographs, however, influence policymakers and the public differently.

Public concern for the environment is driven by (among other variables) the news story agenda and, in a noticeably more moderate way, by photographs that appear in the news and advertisements produced by industrial interests. Granger tests establish that news stories, news pictures and advertising pictures significantly influence public concern for the environment. The three, four and five-equation models show consistently, however, that stories have a more significant causal effect on the public than do news photographs.

In all of the models, Impulse response functions showed consistently that public opinion is influenced by both text and images that appear in the news. Unlike other systemic influences, photographs and text cause persistent effects – public concern remains statistically higher 12 months after a shock from either. But there are also clear differences between the modalities. The effects of news stories are immediate. Within the first month of a published story, the public is significantly more concerned about the environment. In response to photographs, the aggregate public takes much longer to show an increase of concern.

Policymakers, on the other hand, respond quite differently to news stories and photographs. The three, four and five equation models showed clearly that news stories do not have any impact on committee action whatsoever. News pictures, on the other hand, are one of the strongest causal drivers of policy action.

Impulse response functions show us that photographs influence policymakers to boost committee meetings on the environment; news stories do not. The predicted response in committee meetings show us that environmental photographs appear to cause policymakers to increase committee meetings more rapidly and more intensely than any other variable.

The five-equation model illustrated that text and images influence is also dependent on the type of communication in which it appears. Photographs that are part an environmental public lobbying campaign have intriguingly different effects on aggregate public opinion than they do on policy action. If the photograph appears in an advertisement, the public appears to be torn by systemic countervailing forces. Granger results show that the public is significantly influenced but impulse response functions indicate that it may be pulled in different directions by the negative institutional responses and the positive advertising responses. Again, policymakers are strongly influenced by photographs, but this time, impulse response functions show that greenwash advertising inspires a reduction in environmental committee meetings.

The second research question asked:

(2) Are there discrete framing effects within advertising messages – that is, are opinions affected by text, images, or some combination of both?

Findings presented in chapter five do not entirely conform to expectations and thus the answer to the second research question is more qualified. Textual conditions do influence opinions and they appear to do this in part by framing the issue for participants. Photographs, on the other hand, appear to have a slight capacity to influence opinions, but there is little evidence to suggest that images are framing the dredging question for

the participants. Framing effects, contrary to my hypothesis, appear to be mixed – greenwashing advertisements with text frame public policy issues. Photographs by themselves do not.

Comparison-of-means tests indicate that advertisements with text significantly influence participants' opinions and belief importance measures. Inferential statistics add support to these findings. Important for the framing hypothesis, regressions also indicate that belief importance measures were influenced by experimental conditions and in turn caused opinion change. Results, in short, are strongly supportive of the hypothesis that textual advertisements influence opinions on dredging in part by framing the issue.

Evidence of photographic effects is more provisional. Difference-of-means tests show that photographs display no significant impact on dredging preferences. There was no evidence that images can frame the issue for participants. Regressions suggest, however, that once demographic and other independent variables are controlled for, images do in fact change opinions. But consistent with the difference-of-means tests, photographs alone do not appear to frame the issue for participants.

Reconciling Findings

News stories inflate public concern for the environment – so do news pictures, but not as much. If a photograph appears as part of an advertisement, the aggregate public responds in a confused manner. Policymakers are strongly influenced by both news photographs and advertising photographs – the former increases committee meetings and the latter dampens them. News stories, however, have no impact on policy action whatsoever. At the individual level, it appears that the very way in which someone conceives a problem – the beliefs and values that come to mind in making a decision can

be shaped by words. Images appear to have a slight influence on preferences but apparently do not achieve this influence through framing effects.

Taken together, chapter four and chapter five present findings that are difficult to resolve with certainty. This is due to the inherent complexity involved in extricating effects from greenwashing efforts and public lobbying in general. I have been obliged to examine effects that are both direct and indirect and that have both social and psychological implications. In answering the questions above, I encountered variation in modalities (text-image), levels of analysis (aggregate-individual), aspects of public opinion (salience-preference) and groups of interest (public-elite). Given these confounding relationships, a simple matter-of-fact resolution is implausible. What follows instead is a discussion of the theoretical implications for the findings in each of the key variations. If the findings are ambiguous, I will outline questions posed by the findings. Additionally, I will raise potential directions for future research.

Manipulation of Salience and Preferences

The signaling model maintains that salience may rise and fall with media attention but that public preferences on issues of public policy remain relatively fixed and true. Other scholars propose that preferences can be manipulated as well – and by a similar means as salience itself. Jacobs and Shapiro (2000), for instance, suggest that individual-level evaluations of public policy choices can be manipulated by elites who are able to make salient a particular evaluation of a public problem – an evaluation that resonates with the underlying values of the public.

At issue here are two important and related questions – the extent to which elites can exercise power, contain and shape conflict among the polity (Gaventa, 1980; Lukes,

1974; Bachrach and Baratz, 1962; Schattschneider, 1960) and, in a more immediate and applied perspective the extent to which the construction of political issues – or policy images in Baumgartner and Jones’ idiom (1991) – and thus policy venues can be manipulated by elites. Ultimately it is a question of whether the public plays a meaningful role in the shaping of policy and the construction of issues.

Results outlined above suggest that aggregate concern with the environment and individual-level policy preferences can be similarly influenced by elite constructions – by what can be considered a negotiated construction of journalists and their sources and by the strategic public lobbying efforts of the interests alone. Although images do not appear to have a robust effect on public preferences or public salience, public concern for the environment is highly responsive to the textual content in the news media and specific policy positions on dredging are similarly directly and indirectly influenced by textual claims in advertisements.

The hypothesis that salience and preference – the constituent parts of public sentiment towards public problems – are as categorically distinguishable – that one remains fixed while the other is suggestible, as Kollman (1998) maintains, doesn’t find much support in the evidence gathered above.

Findings indicate that both the level of aggregate environmental concern and specific policy preferences are impressionable. It appears, further, that they can be influenced for similar reasons. News stories raise salience and greenwashing advertisements change opinions. The text in public lobbying efforts actually appears to change the way in which the problem is evaluated. Just as people are in part evidently dependent on textual content to define when they should be concerned about the

environment – in Cohen’s words “what to think about” – they are also dependent on those same words to define what the specific environmental problem is and therefore which particular values or beliefs are relevant in their own evaluation.

Because a large majority of people consistently report that they support increased efforts by the government to protect the environment (Dunlap, 1991) and in general a high level of support for environmental protection (Gillroy and Shapiro, 1986), we can consider that the opinions that people have towards environmental protection may be more akin to a true attitude or belief or value than an ephemeral “consideration”.

Most environmental questions, however, require that a person take this general belief or value and apply it to a more specific question of public policy or tactic. The typical environmental policy question, in other words is not “do you want to protect the environment” but something more like “should clearcut logging be allowed” or “is a 379 ppm concentration of Carbon Dioxide acceptable?”

Because people in all probability do not have a specific policy preference in mind, for questions such as these, they are compelled to draw upon their long-standing beliefs for an answer. These beliefs and values include their concern with protecting the environment and other autonomous values like business growth and property rights and even more vague dispositions like distrust of government and general support for regulations. From whichever general conviction appears to be most relevant, the individual constructs a temporary decision about what particular tactics are best (Zaller, 1992; Nelson and Oxley, 1999). This would explain fluctuations in specific environmental questions and consistency in the concern of environmental protection. It is not that people are insincere about their concern with the environment – only that

applying that value is difficult in questions of public policy when one does not have the requisite information and context.

With this in mind, the dredging decision asked of the participants in the experiment is typical of most environmental issues. The question that people are being asked is complex and filled with uncertainty. Participants, moreover, are being confronted with claims that appear to have the same goal in mind (protection of the environment) but they are opposed. What is being asked of people, in essence, is to apply their values of protecting the environment – in consideration with other beliefs – and make a decision on an issue in which they probably have no strong policy preferences, nor any specific factual information that would help them decide.

According to the results presented in chapter five, people resolve this dilemma by relying on sources to give them context. In the absence of any real information one way or the other, people are using the source as a heuristic cue for making a specific decision on an immediate policy preference (Popkin, 1991; Zaller, 1992). What is interesting is that this is not just a direct cue – as is observed in the impact of the Sierra Club on participants' dredging opinions – but also observable as an indirect framing effect – as observed in the General Electric conditions.

The upfront implications of these findings are that elites face substantial framing constraints (Druckman, 2001) and interests are inhibited in their ability to engage in public lobbying efforts that may be artificial (Kollman, 1998). With a little scrutinizing, however, one can arrive at an alternate hypothesis. As noted above, the findings imply that if people are using a source as a heuristic for direct decisions and as a means for making value judgments, all that is required for an industrial interest to face virtually

limitless constraints in their greenwashing efforts to manipulate preferences in favor of their policy goals is to create a name that sounds vaguely protective of the environment.

The so-called “wise use” movement is an excellent example of this and strong anecdotal evidence that industrial interests are indeed using this tactic as part of an effort to influence the public. Some examples of these types of organizations with anodyne names but specific industrial policy objectives include: the Environmental Conservation Organization (real estate developers who oppose wetlands preservation); the Evergreen Foundation (timber industry lobbyist); the Global Climate Coalition (chamber of commerce industry group organized against legislation to prevent global warming); the Alliance for Environment and Resources (timber industry lobbyist); and the Information Council for the Environment (coal industry lobbyist).

This is, in any case, an empirical question that should be investigated in subsequent research. An experimental study much like the one I undertook in chapter five would be a direct way to test whether misleading names alone are enough to offset the apparent source constraints in changing preferences.

As I described in the first chapter, greenwashing is not for the most part a public effort to accomplish a specific policy objective in which preferences must be molded. What General Electric set out to do in its Hudson River campaign is a comparatively aggressive greenwashing operation. Most greenwashing efforts appear to be a tactical response to the climate in public opinion and administration policy. Most campaigns appear to be attempts to diffuse general concerns for the environment amongst the public and the policymakers.

Empirical aggregate results show that interests can be quite successful here. Indirect influence through the news media is robust; both text and photographs influence the public; and images are a very strong driver of environmental policy action. Directly, interests are somewhat more hindered in their ability to influence the public, but they are quite potent in their capacity to influence policy action.

This is not to say that interests are unimpeded in their strategic policy objectives. Interests do face a number of constraints in their ability to direct public opinion and policy action. First, images and text that appear in the news do have a significant effect on the concerns of the public and concerns of policymakers, but that does not suggest that interest groups can define what is considered newsworthy. As Gans (1979) and Tuchman (1972) find, this limits access to a select group of interests – and virtually excludes others – in routine newsmaking (Molotch and Lester, 1975). Further, as Cook (1998) writes, as part of the negotiation of newsworthiness, journalistic routines and values do not allow sources to exclusively define what the agenda is. Although sources have the advantage in staging the news, journalists often have the final word in how it gets covered. Second, the empirical results above show that public response to direct greenwashing efforts is confused. This appears to be a result of the confounding dynamics of the influence system. Greenwashing and public lobbying efforts are in a systemically precarious position. Because public concern rises as policy action falls and falls as news coverage drops, greenwashing efforts pull the public in both directions. As such, and notwithstanding their apparent objectives as outlined in chapter one and empirical responses in chapter four, direct greenwashing efforts will have little manifest influence

on public salience. Still this probably seems acceptable to the industry groups, given their direct and robust effects on public policy action.

Greenwashing as Public Lobbying: Framing not Signaling

In giving a descriptive account of industrial lobbying since 1962, I presented the argument that the public lobbying advertisements were evidently responsive to the public mood and the legislative tenor of the time. I suggested that public lobbying did not appear to be signaling a fixed and true public sentiment to policymakers but actually an attempt to shape and diffuse public concern during times in which the federal government is more likely to enhance protection for the environment.

Findings in the empirical chapters support this descriptive assessment quite well. In chapter four, evidence indicated that the public and interest groups respond in substantially different way than the signaling model hypothesizes. The public, for one, does not exhibit a fixed level of concern for the environment. It is in fact, as the Granger tests and impulse response functions showed causally influenced by all other variables in the system. Far from being exogenous to the construction of policy image, the public concern is significantly driven by policy and media attention.

Findings also indicate that while interests do seem to directly influence policy action, they do not appear to be signaling the public's "true" policy preferences. Evidence shows that industrial interests tend to increase their environmental advertisements at times when public concern rises. And this, as I have argued, is contrary to the signaling hypothesis, which contends that interests will go public when salience is in their favor. If industrial public lobbying were merely indicating the latent public concerns, we would expect industry-sponsored advertisements to fall at a time when the public grows

increasingly supportive of more environmental regulation. As the findings suggest, the relationship is quite the opposite: lobbying efforts increase after a spike in public concern for the environment. Second, the effect of public lobbying is to lower policy action towards the environment. And this observation works against Kollman's expectation that public lobbying fosters a relationship where the public responds to the "sincere expressions of constituents." Instead the impulse response functions show us something quite contrary: as public concern goes up, so do public lobbying efforts, and increased public lobbying diminishes policy action.

Results from the experiment further specify that the signaling model does not adequately explain the individual level effects of a public lobbying advertisement. And while the support for the framing model is modest – it provides a much better account for empirical results than does the signaling model.

In being exposed to a single advertisement participants changed their opinions about dredging the Hudson. When we controlled for the effects of demographics and other independent variables, this effect persisted whether one was exposed to a photograph-only advertisement, a text-only advertisement or a combination of both.

Framing effects were observed, but only in advertisements with text. Photographs may influence participants' opinions on dredging, but they didn't appear to do so by changing the relative priority of the values or beliefs that underlie their policy decision.

Further research could examine more specifically the framing effects of explicit public lobbying efforts and better control for the types of values that are elicited. Because I used a duplication of real advertisements as the experimental manipulations, I had no control over the specific claims. Designing an advertisement that aims to elevate the

priority of specific and pertinent values might provide less equivocal results. Further, as research on belief importance indicates (Jaccard et al., 1995; Jaccard et al., 1986; Jaccard and Sheng, 1984) the measures themselves display poor correlation. Future tests should employ other assessments of the relative importance of values and considerations. This may clarify the framing results obtained here.

Public and Policymakers

Perhaps the most interesting empirical outcome of this dissertation is the discrepant and counterintuitive manner in which images and text influence the public and policymakers. The public is variously portrayed as being increasingly disengaged from politics (Patterson, 2002), ignorant of much of political facts (Delli Carpini and Keeter, 1996), and even ideologically innocent and incapable of engaging in political discourse (Converse, 1964). Yet it is the public that responds to this political discourse in the media. It is words, not the less literate pictures that impact the aggregate salience and individual preferences for the public, while the literate, educated and sophisticated policy elites are evidently more dependent on pictures to capture their attention.

At first glance these findings are ironic. The politically limited public is dependent on words to help them construct meaning and salience while the elites are more influenced by pictures. This is, as it turns out, a rather superficial interpretation of the results.

Based on the findings above, it appears that it is because textual communication is explicit and because words define meaning that it has a more focused effect on the public. It also seems that policy elites are much less moved by those words because have some control over the words that get published as part of news. Additionally, there are syntactic

and semantic qualities of photographs that could contribute to these effects. The net result, in any case appears to be that interests and other elites use words to define and limit how the public perceives issues of public policy and how concerned they will be about them. Images, on the other hand, can influence the policymakers.

The results do not offer conclusive evidence for any one explanation of the motivations of and influences on the public and policymakers, but they do suggest several competing and concomitant interpretations:

Third-Person Effect

The most obvious interpretation of the discrepant impact of photographs on policymakers and the public is the third person effect (Davison, 1983). In Davison's words, "In some cases a communication leads to action not because of its impact on those to whom it is ostensibly directed, but because others (third persons) think that it will have an impact on its audience"(p.1). Envisioned thus, politicians are influenced by environmental photographs not because they are personally influenced but because they believe that the public will be upset by the photographs and therefore they should act (call committee meetings) in order to head off the possible perception that the politicians are not doing enough about that particular problem.

If we restrict ourselves to try and account merely for the motivations of the policymakers this seems at least plausible; policymakers decide to act on seeing photographs in the media because photographs indicate to the policymakers something that is salient. This would be the corollary to Leogrande's (in Glynn et al., 1999) point about public opinion towards the contras. Because the photographs are perceived to be evidence of something destructive (in the news) or protective (in the advertisements) to

the environment, policymakers respond immediately because they don't want the public to become excited.

But there are also some apparent limitations with this theoretical approach. First, the evidence outlined above shows that the public *does* respond to photographs. The effects are not as robust as the policymaker response, but public concern for the environment does significantly increase with a rise in environmental photographs in the news. Furthermore, as the experiment shows, individual preferences are also influenced significantly by just a single image.

Second, the third-person effect does not account for the mechanism of influence or non-influence. Is it that the policymakers recognize that the photograph is evidence of some environmental wrong-doing and the public does (for the most part) not? Or is it that the public recognizes the implications of the photograph but, for whatever reason, it does not raise concern. To put it another way, are the discrepant effects caused by what the policymakers recognize as the meaning of the photograph (and what the collective public largely does not) creating this one-way third person effect? This is in essence the second response to the findings.

Further research could largely resolve these questions. A survey or, better yet, in-depth interviews with policymakers could shed some light on their motivations, which appears to be the core question with regard to the third-person effect.

Meaning, Context and Photographs

As a complement rather than an alternative to the third person effect, the syntactic properties of photographs and words offer another explanation of the discrepant impact on policymakers and the public. A picture, it is said, is worth a thousand words. This

truism is used often to convey the idea that a simple photograph can be richly evocative for its viewer. But an unrecognized upshot of this cliché requires that the viewer actually has those thousand words (and concepts) to explain what is in the picture. A photograph of a house may be full of meaning for one person (his/her childhood home) but it would be utterly meaningless for another person – other than to describe it as a white, two-story colonial with an oak tree out front.

A person applies context to a picture to give it meaning. Without that context there is little meaning –and importantly, without a common context there is no shared meaning and potential for collective construction, action and response. Words, to rephrase Messaris (1997) are syntactically determinate and as such words can define and categorize. Words are unambiguous – or at least much less ambiguous than pictures. Because there are clear rules of syntax, words and sentences are explicit in their assertions. Photographs are not.

An example may illustrate my point. Consider a picture of a fallen tree that appears in the pages of a national magazine in the early 1970s. The picture, black and white, shows a logger standing next to a large stump. The caption indicates little more than the logger is working in Washington State. A senator serving on the Senate Committee on Agriculture, Nutrition, and Forestry sees the picture and recognizes that the tree is an old tree – very old, maybe over a thousand years, judging by its size. Because of its deep cavernous bark and taking into account it is in the coastal region, the senator guesses that it is a Douglas fir. Furthermore, to him, the picture represents something that a few of the environmental groups had been trying to bring to his attention recently. Forest Service policy, they have been arguing, has been negligent the way that

they have been allowing the timber companies continuous access to old-growth forests. He saw this for himself, in a recent trip to Washington State. Re-planting forests, he has been told, is low-percentage in its success, therefore timber companies continually seek and are granted access to new swaths of public land. For the senator, in short, the picture patently signifies the failure of the current Forest Service policy.

The senator's response, hypothetical though it may be, is a fair depiction of how pictures elicit meaning. The meaning of the picture in the magazine is defined by what he already knew – or thought he knew about logging, the forest service, and the state of the nation's federal lands. The picture is not explicitly conveying this reading of the photograph, but to someone with the senator's experience, present concerns and burden, the meaning is evident.

Now consider how we would expect the aggregate public to respond. Although any one individual, or even a small interested group of the collective public, may perceive that the photograph conveys a similar meaning as was apparent to the senator (an environmentalist, someone living in Seattle, where the issue is salient, or a lumber company executive) the collective response will be diverse. If the issue isn't salient, the picture might mean nothing at all to large numbers of the aggregate.

Because photographs are not restrictive in the way they convey meaning, the *initial* aggregate response to it will be, by extension, diverse. Later, as Perlmutter (1998) argues, there may be through other mechanisms of meaning construction a collective agreement about what the photograph means and because it then represents that *ex post facto* meaning so apparently – the photograph become an “icon” of that agreed upon

meaning. But this is a construction that relies upon on words to shape, define and prescribe meaning.

Messaris writes that “visual communication does not have an explicit syntax for expressing analogies, contrasts, causal claims, and other kinds of propositions.” This gives visual communication a subtlety in its ability to insinuate without making an assertion and provide subtle evidence, as he points out, but it also limits the communication of uniform meaning – especially in the immediate.

Evidence presented above is consistent with all of this. Policymakers respond immediately and decisively to images. The collective public takes months to respond in a resolute way. In terms of the advertising images, Granger tests show that the public is significantly influenced by the image, but impulse response functions show a confused reaction. The likely interpretation of these paradoxical findings is that because the public is sensitive to all other variables in the system – more so to the text variables and policy variables than the images – their responsiveness to the images are largely shaped by the other variables. In the case of the advertising image, news stories and policy action are reduced, which pulls the public in opposite directions. The collective public, in short, appears to depend on the other systematic forces to help define and limit meaning, when the causal statements and propositions aren’t in themselves explicit. Meaning from pictures does not immediately appear to be evident to the aggregate public. Faced with an image whose meaning is not defined, the aggregate is varied in what it imputes and therefore in its response. Until the meaning is limited (by words) there will be no unified response in the aggregate public.

Pictures as Evidence

While the discussion above might explain why a small group of engaged and highly informed elites might impute a different shared meaning than an aggregate, it does not explain why they feel so compelled to act. Why, to put it another way, do photographs inspire such immediate and dependable responses from the policymakers while news stories do not? The semantic qualities of words and pictures provide an interpretative framework from which to understand policymaker and public response.

As discussed in the literature review, one quality of photographic meaning is that it is indexical. In semiotic terminology, indexicality means that the signifier (photograph) provides a common sense connection or evident proof of a proposition. In short, people perceive images as documentary evidence. Even though photographs present a picture that is limited in time and perspective (and may indeed be manipulated) people persist in interpreting them as truth. In a circular form of reasoning, people believe that a photograph is evidentiary proof of the meaning that they ascribe to the photograph.

Again, an example may best illustrate the point. Consider how the hypothetical chair of the House Committee on Energy and Commerce would view a photo-essay on air pollution, which appears within a national news magazine. Imagine further that the Representative had been stalling the passage of an air pollution bill that aimed to reduce emissions of automobiles. The pictures depict, in full page photographs, smog in several major metropolitan centers. The representative, although he has been an outspoken opponent of increased environmental regulation, may feel pressure to give ground because the photo essay provides proof of the problem – evident and open for everyone to see. Unlike a claim from some environmental group, which he could counter with his

own authoritative response, he will feel compelled to respond rather than counter the “evidence” with a claim of his own.

Photographs offer evidence or apparently factual documentation. If there is a fire, a natural disaster or someone is shot and killed, a clear photograph will present more vivid evidence of that event than words ever can.

In a unique way, therefore, the results could indicate that photographs have power over lawmakers just as words have power over the public. Public salience as an aggregate is shaped by the proscriptive and prescriptive qualities of language. Their preferences and level of concern are shaped by the words and stories that journalists and elites agree becomes the story of the issue. Photographs, on the other hand, have exceptional qualities to them that raise and lower committee action, allow for the transformation of a policy image or policy venue. This power is the power of evidence that lies outside the power of words.

Zaller’s (1992) Receive Accept Sample model proposes that public opinion is shaped by a complex interaction of available and salient information, sophistication and engagement in politics. Zaller explains empirical contradictions in influence and opinion formation by way of the properties of political awareness and political attentiveness. The crux of the model rests on the countervailing forces of the reception axiom and the resistance axiom. The reception axiom states that “the greater a person’s level of cognitive engagement with an issue, the more likely he or she is to be exposed to and comprehend – in a word receive – political messages concerning that issue”(p.58). The counterposing force is explained by the resistance axiom, which Zaller defines as: “people tend to resist arguments that are inconsistent with their political predispositions,

but they do so only to the extent that they possess the contextual information necessary to perceive a relationship between the message and their predispositions.”

What the collected data and analysis above might suggest is that this explanation of opinion formation is unique to textual or verbal communication. Future research could examine this question directly. The fact that photographs drive policy and text does not may suggest that while reception axiom applies equally to photographs, the resistance axiom – because the meaning of photographs is implied and especially because photographs are seen as evidence – might not. A photograph of birds coated in oil is pretty damning evidence (once it is understood as meaning a failure of adequate regulation for transportation of oil)—evidence that cannot be responded to by anything other than action.

Lawrence and Bennett (1995) write that accidental events can induce the public into a new understanding of a public problem. With regard to the Mobro garbage barge, they write that “Americans were invited – through the medium of an icon rather than through ideological partisan discourse – to understand the garbage problem as a problem of individual and community responsibility. An accessible link was thus provided between deeply held cultural values and a newly emerging problem.” In a later work, Lawrence (2000) contends that the invitation occurs by way of a shift in the way that journalists and their sources construct the news. Accidental events, she writes, “can present serious challenges to dominant ways of framing issues in the news, temporarily upsetting official control of the news.”

The results here suggest that there may be additional dynamics at work outside the construction of meaning that occurs between journalists and their sources. In concert

with the shifts in journalistic expectations and routine that accompany an “accidental event” and precipitate a new construction of meaning, evidence collected in this dissertation suggests that because photographs themselves have a unique capacity to direct policymakers, they could be influencing the policymakers to re-evaluate their approach.

Policymakers respond to photographs – in greenwashing advertisements and in the news. Pictures have a unique capacity to raise and lower the intensity of committee action. I have argued here that in part this may be due to the capacity of pictures to present evidence of a problem to policymakers – evidence that they cannot respond to or *control* with words. It is perhaps this same quality in times of “accidental events” that influences a change in tactics at the level of those who once controlled the policy image. This, at any rate, is an empirical question that could be further investigated.

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Appendix A: Agenda Setting Models

I. The Basic Three Equation Model

$$\begin{aligned} PM_t = & \alpha + \sum_{k=1}^k \beta_{1(k)} PM_{t-k} + \sum_{k=1}^k \beta_{2(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{3(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{4(m)} RW_{t-m} \\ & + \beta_5 election_t + \beta_6 election_{t-1} + \beta_7 election_{t+1} \end{aligned}$$

$$\begin{aligned} PubOp_t = & \alpha + \sum_{k=1}^k \beta_{8(k)} PM_{t-k} + \sum_{k=1}^k \beta_{9(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{10(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{11(m)} RW_{t-m} \\ & + \beta_{12} election_t + \beta_{13} election_{t-1} + \beta_{14} election_{t+1} \end{aligned}$$

$$\begin{aligned} Policy_t = & \alpha + \sum_{k=1}^k \beta_{15(k)} PM_{t-k} + \sum_{k=1}^k \beta_{16(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{17(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{18(m)} RW_{t-m} \\ & + \beta_{19} election_t + \beta_{20} election_{t-1} + \beta_{21} election_{t+1} + \beta_{22} budget_t \\ & + \beta_{23} budget_{t-1} + \beta_{24} fiscal_t + \beta_{25} fiscal_{t-1} + \beta_{26} fiscal_{t+1} \end{aligned}$$

II. Four Equation Model

$$\begin{aligned}
 PM_t = & \alpha + \sum_{k=1}^k \beta_{1(k)} PM_{t-k} + \sum_{k=1}^k \beta_{2(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{3(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{4(m)} RW_{t-m} \\
 & + \sum_{k=1}^k \beta_{5(k)} Photo_{t-k} + \beta_6 election_t + \beta_7 election_{t-1} + \beta_8 election_{t+1}
 \end{aligned}$$

$$\begin{aligned}
 PubOp_t = & \alpha + \sum_{k=1}^k \beta_{9(k)} PM_{t-k} + \sum_{k=1}^k \beta_{10(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{11(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{12(m)} RW_{t-m} \\
 & + \sum_{k=1}^k \beta_{13(k)} Photo_{t-k} + \beta_{14} election_t + \beta_{15} election_{t-1} + \beta_{16} election_{t+1}
 \end{aligned}$$

$$\begin{aligned}
 Policy_t = & \alpha + \sum_{k=1}^k \beta_{17(k)} PM_{t-k} + \sum_{k=1}^k \beta_{18(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{19(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{20(m)} RW_{t-m} \\
 & + \sum_{k=1}^k \beta_{21(k)} Photo_{t-k} + \beta_{22} election_t + \beta_{23} election_{t-1} + \beta_{24} election_{t+1} \\
 & + \beta_{25} budget_t + \beta_{26} budget_{t-1} + \beta_{27} fiscal_t + \beta_{28} fiscal_{t-1} + \beta_{29} fiscal_{t+1}
 \end{aligned}$$

$$\begin{aligned}
 Photo_t = & \alpha + \sum_{k=1}^k \beta_{30(k)} PM_{t-k} + \sum_{k=1}^k \beta_{31(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{32(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{33(m)} RW_{t-m} \\
 & + \sum_{k=1}^k \beta_{34(k)} Photo_{t-k} + \beta_{35} election_t + \beta_{36} election_{t-1} + \beta_{37} election_{t+1}
 \end{aligned}$$

III. Five Equation Model

$$\begin{aligned}
PM_t = & \alpha + \sum_{k=1}^k \beta_{1(k)} PM_{t-k} + \sum_{k=1}^k \beta_{2(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{3(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{4(m)} RW_{t-m} \\
& + \sum_{k=1}^k \beta_{5(k)} Photo_{t-k} + \sum_{k=1}^k \beta_{6(k)} Advert_{t-k} + \beta_7 election_t \\
& + \beta_8 election_{t-1} + \beta_9 election_{t+1}
\end{aligned}$$

$$\begin{aligned}
PubOp_t = & \alpha + \sum_{k=1}^k \beta_{10(k)} PM_{t-k} + \sum_{k=1}^k \beta_{11(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{12(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{13(m)} RW_{t-m} \\
& + \sum_{k=1}^k \beta_{14(k)} Photo_{t-k} + \sum_{k=1}^k \beta_{15(k)} Advert_{t-k} + \beta_{16} election_t \\
& + \beta_{17} election_{t-1} + \beta_{18} election_{t+1}
\end{aligned}$$

$$\begin{aligned}
Photo_t = & \alpha + \sum_{k=1}^k \beta_{19(k)} PM_{t-k} + \sum_{k=1}^k \beta_{20(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{21(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{22(m)} RW_{t-m} \\
& + \sum_{k=1}^k \beta_{23(k)} Photo_{t-k} + \sum_{k=1}^k \beta_{24(k)} Advert_{t-k} + \beta_{25} election_t \\
& + \beta_{26} election_{t-1} + \beta_{27} election_{t+1}
\end{aligned}$$

$$\begin{aligned}
Advert_t = & \alpha + \sum_{k=1}^k \beta_{28(k)} PM_{t-k} + \sum_{k=1}^k \beta_{29(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{30(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{31(m)} RW_{t-m} \\
& + \sum_{k=1}^k \beta_{32(k)} Photo_{t-k} + \sum_{k=1}^k \beta_{33(k)} Advert_{t-k} + \beta_{34} election_t \\
& + \beta_{35} election_{t-1} + \beta_{36} election_{t+1}
\end{aligned}$$

$$\begin{aligned}
Policy_t = & \alpha + \sum_{k=1}^k \beta_{37(k)} PM_{t-k} + \sum_{k=1}^k \beta_{38(k)} PubOp_{t-k} + \sum_{k=1}^k \beta_{39(k)} Policy_{t-k} + \sum_{m=1}^m \beta_{40(m)} RW_{t-m} \\
& + \sum_{k=1}^k \beta_{41(k)} Photo_{t-k} + \sum_{k=1}^k \beta_{42(k)} Advert_{t-k} + \beta_{43} election_t + \beta_{44} election_{t-1} \\
& + \beta_{45} election_{t+1} + \beta_{46} budget_t + \beta_{47} budget_{t-1} + \beta_{48} fiscal_t \\
& + \beta_{49} fiscal_{t-1} + \beta_{50} fiscal_{t+1}
\end{aligned}$$

Appendix B: Full Experimental Questionnaire

Study Title: Informational Effectiveness of The Media

- 2. Performance Site:** Louisiana State University and Agricultural and Mechanical College
- 3. Investigators:** The following investigators are available for questions about this study, M-F, 8:00 a.m. - 4:30 p.m:
- Eric Jenner 267-5111
- 4. Purpose of the Study:** The purpose of this research project is to determine how the news and advertising media inform people on issues of public importance.
- 5. Subject Inclusion:** Students of Political Science 2051
- 6. Number of subjects:** About 250
- 7. Study Procedures:** The study will be conducted in a single phase. Subjects will be asked to read a news story and/or an advertisement on a number of public issues. They will then be required to answer factual questions and provide opinions on the content and public issue.
- 8. Benefits:** Subjects will receive bonus points in Political Science 2051.
- 9. Risks:** There are no risks associated with this study. Participants are completely anonymous.
- 10. Right to Refuse:** Subjects may choose not to participate or to withdraw from the study at any time.
- 11. Privacy:** Results of the study may be published, but no names or identifying information will be included in the publication. Subjects are anonymous.

12. Signatures:

The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the investigator's obligation to provide me with a signed copy of this consent form.

Signature of Subject

Date

Instructions

Thank you for agreeing to take part in this study. The purpose of this research project is to determine how well conventional forms of newspaper reporting and advertising inform their audience about public affairs issues. It should take no longer than 10 minutes to complete.

In the following pages, each of you will be asked to respond to questions based on having read or observed a selection of advertisements and news articles. Each participant will read/observe at least one advertisement or one news article. No one will be asked to look at more than one of each.

These are actual news articles and advertisements pulled from real newspapers and news magazines based on real issues that occurred in other states. There are several different issues being used here; you will not all be exposed to the same questions.

Dr. Kenny has agreed to give you **bonus points** for participating in this project. In order that you receive these points, please enter the **last five digits of your student number here:**

The study is completely anonymous. **The researchers will not know who you are.** The purpose of collecting an identity number is to ensure that you receive extra credit. Remember, however, that **only properly filled out questionnaires will be considered for extra credit.**

Before we begin, we'd like to ask some general questions. Please answer the following as best you can. The responses are completely anonymous. Mark your answer directly on the sheet by writing in the space provided or circling the appropriate response.

We hear a lot of talk these days about liberals and conservatives. Here is a 7-point scale on which the political views that people might hold are arranged from extremely liberal to extremely conservative.

1	2	3	4	5	6	7
Extremely Liberal	Liberal	Slightly Liberal	Moderate	Slightly Conservative	Conservative	Extremely Conservative

Where would you place yourself on this scale? _____

Generally speaking, do you usually think of yourself as a Republican, Democrat, an Independent, or what?

Democrat

Republican

Independent

Other _____

If you think of yourself as a **Democrat** or a **Republican**, would you call yourself:

a strong Democrat/Republican.

a not so strong (Democrat/Republican).

If you think of yourself as an **Independent** or **Other**, do you think of yourself as:

closer to the Republican Party.

closer to the Democratic Party.

In what year were you born? 19_____

Which of the following best describes you? Are you White, Hispanic, African-American, Asian, or something else?

Hispanic
African-American
White
Asian
Other

Is your religious preference Protestant, Catholic, Jewish, none, or something else?

Protestant
Catholic
Jewish
Islamic
Other
None

Are you :

Male
Female

In the last five years, have you lived outside the state of Louisiana? If so, please list the states that you have lived in and the years in which you lived there.

How many days in the past week did you read a newspaper, a news magazine, or read news on an online news site?

None
One day
Two days
Three days
Four days
Five days
Six days
Every day

Please read the following article. After you have finished, you will be asked to respond to factual questions and to provide some opinions.

With Public Interest Highest Ever, Public Hearings on PCBs Set to Begin Next Week

BY CHRIS RICHMOND

ALBANY-- Just one week before the Environmental Protection Agency begins public hearings in six river towns on whether or not to force General Electric to pay for the dredging of PCB sediments from the Hudson River, an EPA spokesperson said today that the controversy has generated more public interest than any other issue in the agency's history.

In a press briefing heavily attended by the public, Pat Armstrong, spokesperson for the EPA, said that the response to the request for public comment "has literally flooded this office with opinions on the dredging decision. This is far and away the most significant that this agency has fielded, ever."

Armstrong said EPA officials were still reviewing the comments received about the dredging proposal during the four-month comment period. But she added, "We're still on schedule."

During the comment period, the EPA received 36,000 e-mails and 30 cartons of paper mail. According to EPA records distributed at the briefing, the volume of public comment on dredging represents nearly twice that of any previous EPA decision.

Although the question on whether or not to dredge the Hudson has been waged for decades, river communities have recently been subjected to competing and intense advertising campaigns underwritten by General Electric and environmental

organizations like the Sierra Club and Riverkeeper.

Public concern has apparently escalated in the wake of these advertisements. A Marist Institute poll conducted last month showed that communities have become increasingly divided over the dredging question. Opponents argue that the river is cleaning itself naturally and that dredging would only disturb PCBs lying underneath river sediment. Supporters of dredging contend that PCB sediments in the food and water supply and as evaporated molecules have harmful health effects.

Armstrong refused to answer whether the EPA had received more pro-dredging or anti-dredging comments. "We received substantial comments from both perspectives on this issue," she said.

When it makes a final decision on the dredging issue next week, the EPA must publish a "responsiveness summary," cataloging public comment and answering questions.

Public hearings are slated to begin in Hudson Falls next Tuesday. The special EPA investigatory panel is then scheduled to visit five downstream communities where it will gather comments from the citizens of Ft. Edward, Troy, Albany, Hyde Park and Peekskill. Following the hearings, Armstrong said the agency will announce a decision regarding dredging as planned early next week.

The EPA last year began review of a

\$460 million plan to dredge 2.65 million cubic yards of PCB-contaminated sediment from a 40-mile stretch of the Hudson River between Albany and General Electric's former capacitor factories upriver at Fort Edward and Hudson Falls.

General Electric, which discharged an estimated 1.3 million pounds of PCBs or polychlorinated biphenyls into the river before the chemicals were banned in 1977, could be forced to pay for the cleanup.

WHEN YOU HAVE READ THE ARTICLE COMPLETELY, TURN THE PAGE.

Based on the article on the previous page, please respond the following three questions.

In two or three words, tell us what is at issue here for the community? The news article explains that the Environmental Protection Agency (EPA) is about to render a decision on whether or not to:

What does this problem mean to you? In no more than a few words, please explain what immediately comes to your mind as the single most important issue in this decision.

How interesting was this article? Rate it on a scale of 1 (extremely uninteresting) to 10 (very interesting). Circle the appropriate response.

1 2 3 4 5 6 7 8 9 10

WHEN YOU HAVE ANSWERED THE THREE ABOVE QUESTIONS, PLEASE
TURN THE PAGE.

On the following page is an advertisement. Please examine the advertisement and then, when you have finished, turn the page. You will be asked to respond to factual questions and to provide some opinions.

[ADVERTISEMENT]

Based on the information you have so far, please respond to the following questions as best you can. Mark your answer directly on the sheet by writing in the space provided or circling the appropriate response:

Suppose you lived near the river. How would you feel about dredging: would you support or reject it?

-3	-2	-1	0	+1	+2	+3
Strongly Oppose			Not Sure		Strongly Support	
Dredging					Dredging	

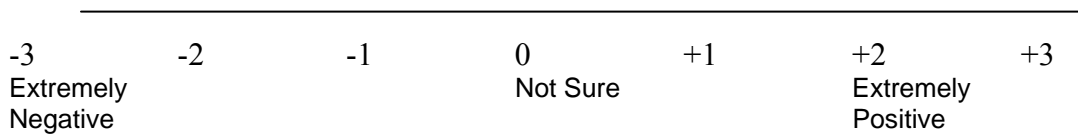
Suppose you lived in the area and you were asked to vote in a special election to approve or reject a decision to dredge the river. How would you vote in this special election?

-3	-2	-1	0	+1	+2	+3
Definitely Reject			Not Sure		Definitely Approve	
Proposal to Dredge					Proposal to Dredge	

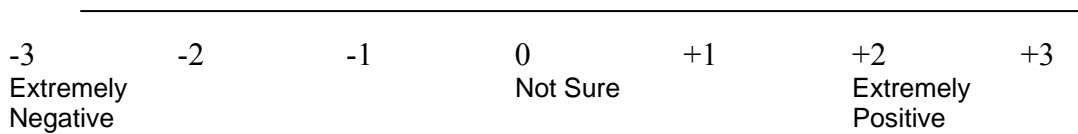
When you made your mind up about the dredging issue, how important to you were the following beliefs, ideas or views? Please rate or the following from 1 (unimportant) to 10 (very important).

- _____ The protection of family and loved ones and/or personal health.
- _____ Cleaning up the environment.
- _____ The rights of people to be free of a polluted environment.
- _____ The intrinsic rights of the environment to be free of pollution.
- _____ The rights of people to say how their land is used.
- _____ General support for business and economic development.
- _____ The claims of General Electric.
- _____ The claims of Environmental organizations.

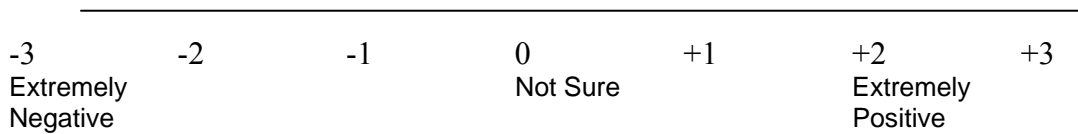
In general, do you believe that the impact of PCBs on the environment are:



In general, do you believe that the health consequences of exposure to PCBs are:



If the EPA decides that General Electric must pay for dredging, do you believe that the impact on the company will be:



What did the decision mean to you? In no more than a few words, please explain what immediately came to your mind as the single most important concern when you made your decision whether to support or reject dredging.

Now we'd like to ask you how you feel about various aspects of the issue. To do this, we will use what we call a feeling thermometer. The thermometer ranges from 0 to 100. A rating of 0 means that you feel very negatively or cold toward a person or group or thing, and a rating of 100 means that you feel very favorable or warm toward the person or

group or thing. If you do not feel particularly warm or cold, you would give a rating of 50. Circle the appropriate location.

Environmental groups.

0 25 50 75 100

General Electric.

0 25 50 75 100

The Hudson River before it is dredged.

0 25 50 75 100

The Hudson River after it is dredged.

0 25 50 75 100

Appendix C: Original Advertisements and Experimental Versions

The Water Is Clearer.

The Swimming Is Safe.

The Herons Are Nesting.

The Boaters Are Everywhere.

The Bald Eagle Is Soaring.

The Tubing Is Great.

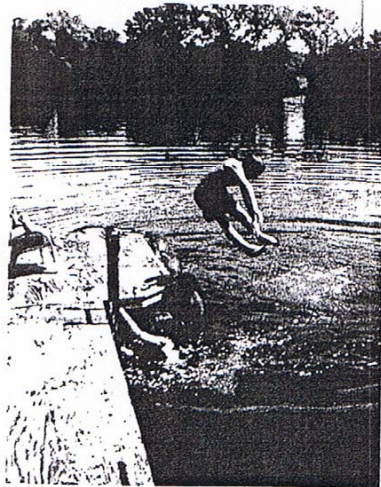
The Fish Are Getting Bigger.

The Hudson Is Back.

Why Dredge Now?

Concerned about the Hudson? Visit www.hudsonvoice.com for more information. A message from GE.

WILL THIS BE THE LAST DIVE FOR TEN YEARS?



Dredging could disrupt life
on the Hudson for ten to twenty years.
If you don't want this to happen, make your voice heard.
Visit www.hudsonvoice.com

A message from GE.

The Water Is Clearer.

The Swimming Is Safe.

The Boaters are Everywhere.

The Herons Are Nesting.

The Bald Eagle is Soaring.

The Fish Are Getting Bigger.

The Hudson Is Back.

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The Water Is Clearer.

The Swimming Is Safe.

The Boaters are Everywhere.

The Herons Are Nesting.

The Bald Eagle is Soaring.

The Fish Are Getting Bigger.

The Hudson Is Back.

Why Dredge Now?

Concerned about the Hudson? Visit www.hudsonvoice.com for more information. A message from The Sierra Club.

WILL
THIS BE
THE
LAST DIVE
FOR
TEN YEARS?

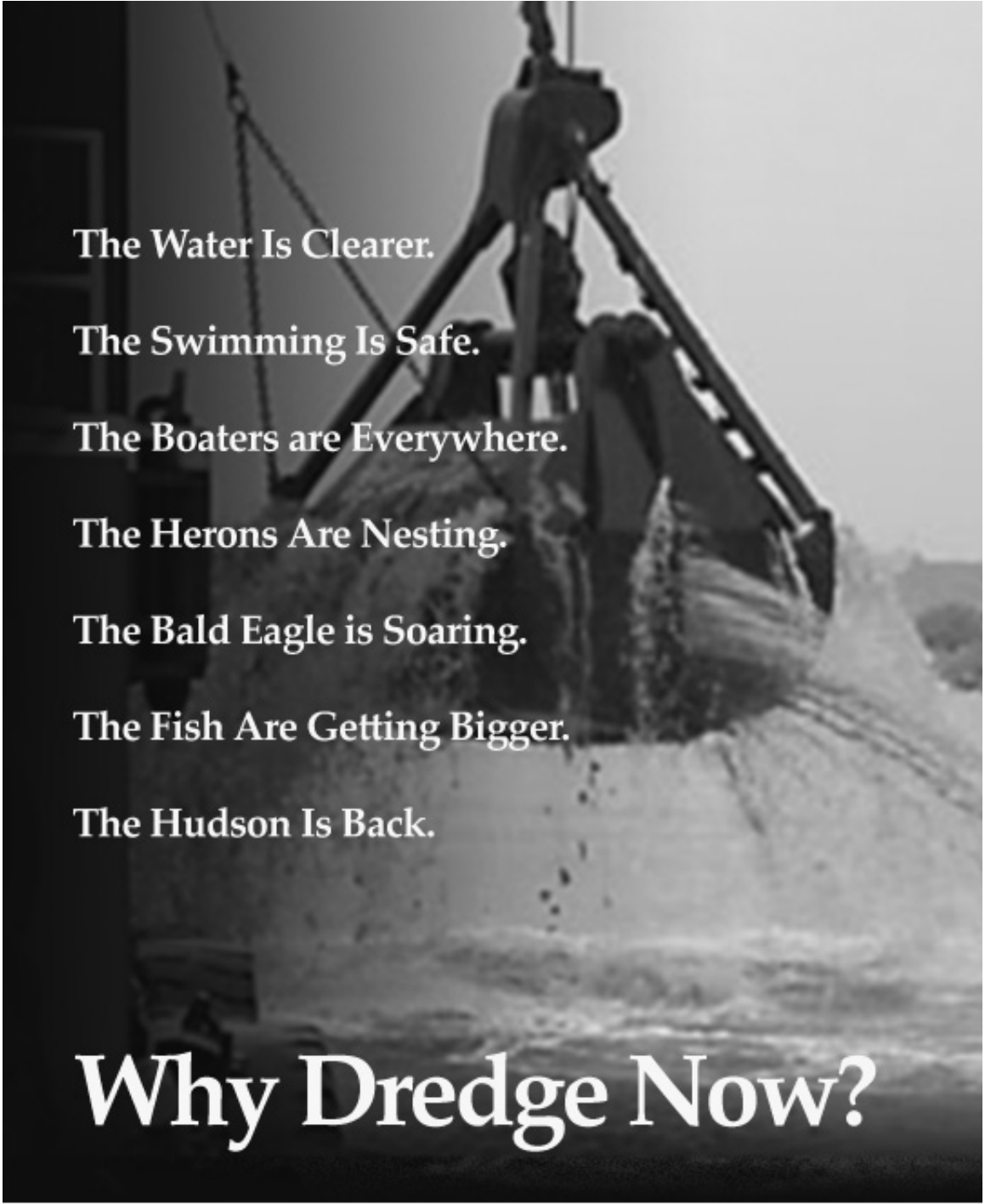
Dredging could disrupt
life on the Hudson for ten to twenty years.
If you don't want this to happen, make your voice heard.
Visit www.hudsonvoice.com

A message from GE.

WILL THIS BE THE LAST DIVE FOR TEN YEARS?

Dredging could disrupt
life on the Hudson for ten to twenty years.
If you don't want this to happen, make your voice heard.
Visit www.hudsonvoice.com

A message from The Sierra Club.



The Water Is Clearer.

The Swimming Is Safe.

The Boaters are Everywhere.

The Herons Are Nesting.

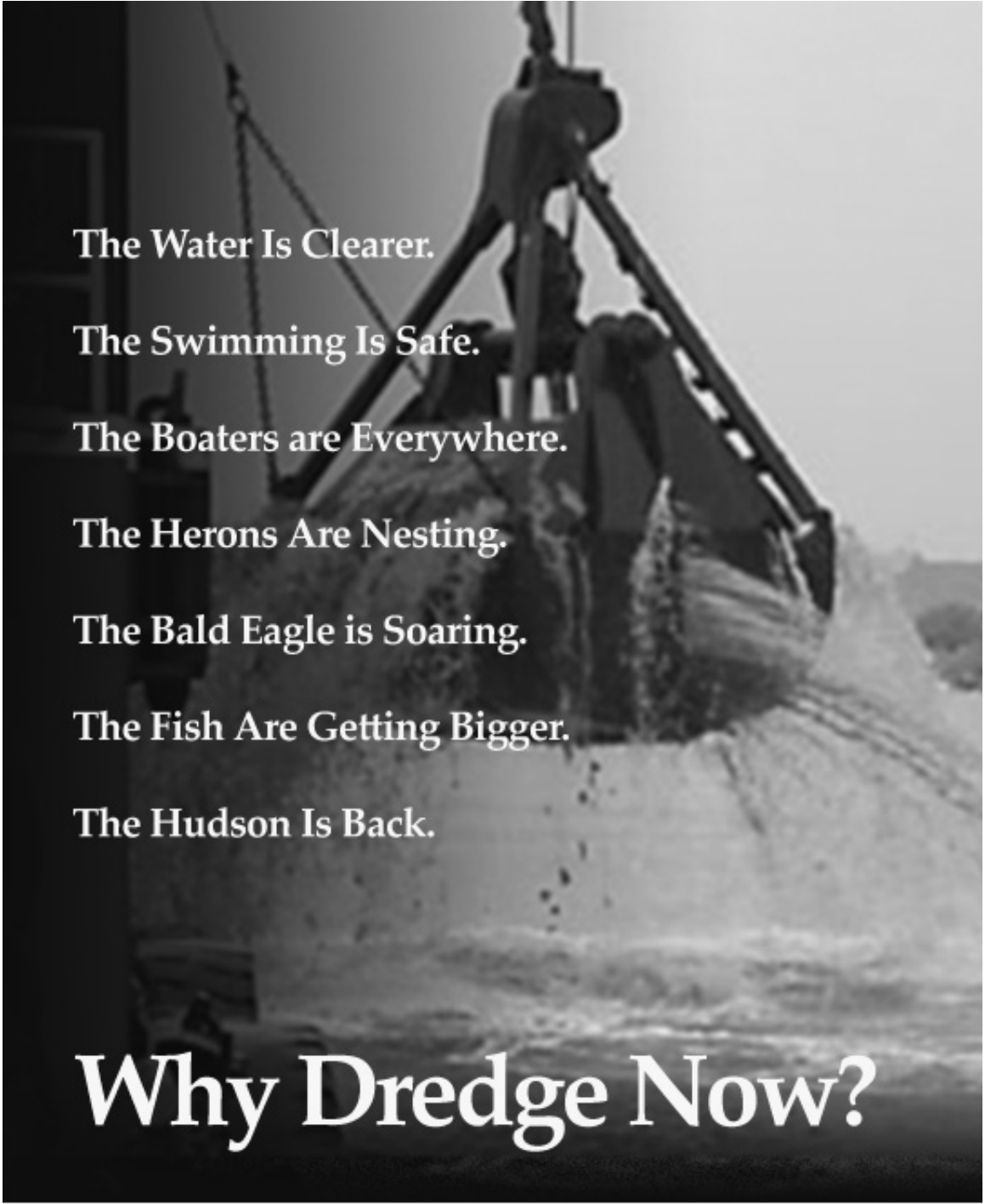
The Bald Eagle is Soaring.

The Fish Are Getting Bigger.

The Hudson Is Back.

Why Dredge Now?

Concerned about the Hudson? Visit www.hudsonvoice.com for more information. A message from GE.



The Water Is Clearer.

The Swimming Is Safe.

The Boaters are Everywhere.

The Herons Are Nesting.

The Bald Eagle is Soaring.

The Fish Are Getting Bigger.

The Hudson Is Back.

Why Dredge Now?

Concerned about the Hudson? Visit www.hudsonvoice.com for more information. A message from The Sierra Club.

WILL THIS BE THE LAST DIVE FOR TEN YEARS?



Dredging could disrupt
life on the Hudson for ten to twenty years.
If you don't want this to happen, make your voice heard.
Visit www.hudsonvoice.com

A message from GE.

WILL THIS BE THE LAST DIVE FOR TEN YEARS?



Dredging could disrupt
life on the Hudson for ten to twenty years.
If you don't want this to happen, make your voice heard.
Visit www.hudsonvoice.com

A message from The Sierra Club.





Appendix D: Stata Log Files for SUR/VAR Estimations

Three Equation Model – Granger Test

```
scalar drop_all  
constraint drop_all  
matrix drop_all
```

```
***PREPARE FOR GRANGER EXOGENEITY TEST
```

```
constraint 5 [mip]L1.env_budget =0  
constraint 6 [mip]env_budget =0  
constraint 7 [mip]L1.fiscal = 0  
constraint 8 [mip]F1.fiscal = 0  
constraint 9 [mip]fiscal = 0
```

```
constraint 10 [nyt]L1.env_budget =0  
constraint 11 [nyt]env_budget =0  
constraint 12 [nyt]L1.fiscal = 0  
constraint 13 [nyt]F1.fiscal = 0  
constraint 14 [nyt]fiscal = 0
```

```
var policy nyt mip , lags(1/6) exog (L6.carbon_dioxide_differenced_month  
L5.carbon_dioxide_differenced_month L4.carbon_dioxide_differenced_month  
L3.carbon_dioxide_differenced_month L2.carbon_dioxide_differenced_month  
L1.carbon_dioxide_differenced_month L6.harvest L5.harvest L4.harvest L3.harvest L2.harvest L1.harvest  
L6.co L5.co L4.co L3.co L2.co L1.co L6.nox L5.nox L4.nox L3.nox L2.nox L1.nox L6.voc L5.voc  
L4.voc L3.voc L2.voc L1.voc L6.so2 L5.so2 L4.so2 L3.so2 L2.so2 L1.so2 L6.pm_10 L5.pm_10  
L4.pm_10 L3.pm_10 L2.pm_10 L1.pm_10 L6.endangered_species L5.endangered_species  
L4.endangered_species L3.endangered_species L2.endangered_species L1.endangered_species  
L6.economic_indicators L5.economic_indicators L4.economic_indicators L3.economic_indicators  
L2.economic_indicators L1.economic_indicators F1.election L1.election election L1.fiscal fiscal  
F1.fiscal L1.env_budget env_budget ) constraints(5/14)
```

```
*GRANGER SUR MODEL (no Budget or Fiscal in MIP, NYT, PIX1ED)
```

```
vargranger
```

Four Equation Model – Granger Test

```
scalar drop_all
constraint drop_all
matrix drop_all
```

***PREPARE FOR GRANGER EXOGENEITY TEST

```
constraint 5 [mip]L1.env_budget =0
constraint 6 [mip]env_budget =0
constraint 7 [mip]L1.fiscal = 0
constraint 8 [mip]F1.fiscal = 0
constraint 9 [mip]fiscal = 0
```

```
constraint 10 [nyt]L1.env_budget =0
constraint 11 [nyt]env_budget =0
constraint 12 [nyt]L1.fiscal = 0
constraint 13 [nyt]F1.fiscal = 0
constraint 14 [nyt]fiscal = 0
```

```
constraint 15 [pix1ed]L1.env_budget =0
constraint 16 [pix1ed]env_budget =0
constraint 17 [pix1ed]L1.fiscal = 0
constraint 18 [pix1ed]F1.fiscal = 0
constraint 19 [pix1ed]fiscal = 0
```

```
var policy pix1ed nyt mip , lags(1/6) exog (L6.carbon_dioxide_differenced_month
L5.carbon_dioxide_differenced_month L4.carbon_dioxide_differenced_month
L3.carbon_dioxide_differenced_month L2.carbon_dioxide_differenced_month
L1.carbon_dioxide_differenced_month L6.harvest L5.harvest L4.harvest L3.harvest L2.harvest L1.harvest
L6.co L5.co L4.co L3.co L2.co L1.co L6.nox L5.nox L4.nox L3.nox L2.nox L1.nox L6.voc L5.voc
L4.voc L3.voc L2.voc L1.voc L6.so2 L5.so2 L4.so2 L3.so2 L2.so2 L1.so2 L6.pm_10 L5.pm_10
L4.pm_10 L3.pm_10 L2.pm_10 L1.pm_10 L6.endangered_species L5.endangered_species
L4.endangered_species L3.endangered_species L2.endangered_species L1.endangered_species
L6.economic_indicators L5.economic_indicators L4.economic_indicators L3.economic_indicators
L2.economic_indicators L1.economic_indicators F1.election L1.election election L1.fiscal fiscal
F1.fiscal L1.env_budget env_budget ) constraints(5/19)
```

*GRANGER SUR MODEL (no Budget or Fiscal in MIP, NYT, PIX1ED)

```
vargranger
```

Five Equation Model – Granger Test

scalar drop _all
constraint drop _all
matrix drop _all

***PREPARE FOR GRANGER EXOGENEITY TEST

constraint 5 [mip]L1.env_budget=0
constraint 6 [mip]env_budget=0
constraint 7 [mip]L1.fiscal=0
constraint 8 [mip]F1.fiscal=0
constraint 9 [mip]fiscal=0

constraint 10 [nyt]L1.env_budget=0
constraint 11 [nyt]env_budget=0
constraint 12 [nyt]L1.fiscal=0
constraint 13 [nyt]F1.fiscal=0
constraint 14 [nyt]fiscal=0

constraint 15 [pix1ed]L1.env_budget=0
constraint 16 [pix1ed]env_budget=0
constraint 17 [pix1ed]L1.fiscal=0
constraint 18 [pix1ed]F1.fiscal=0
constraint 19 [pix1ed]fiscal=0

constraint 20 [pix1ad]L1.env_budget=0
constraint 21 [pix1ad]env_budget=0
constraint 22 [pix1ad]L1.fiscal=0
constraint 23 [pix1ad]F1.fiscal=0
constraint 24 [pix1ad]fiscal=0

var policy pix1ed nyt mip pix1ad, lags(1/6) exog (L6.carbon_dioxide_differenced_month
L5.carbon_dioxide_differenced_month L4.carbon_dioxide_differenced_month
L3.carbon_dioxide_differenced_month L2.carbon_dioxide_differenced_month
L1.carbon_dioxide_differenced_month L6.harvest L5.harvest L4.harvest L3.harvest L2.harvest L1.harvest
L6.co L5.co L4.co L3.co L2.co L1.co L6.nox L5.nox L4.nox L3.nox L2.nox L1.nox L6.voc L5.voc
L4.voc L3.voc L2.voc L1.voc L6.so2 L5.so2 L4.so2 L3.so2 L2.so2 L1.so2 L6.pm_10 L5.pm_10
L4.pm_10 L3.pm_10 L2.pm_10 L1.pm_10 L6.endangered_species L5.endangered_species
L4.endangered_species L3.endangered_species L2.endangered_species L1.endangered_species
L6.economic_indicators L5.economic_indicators L4.economic_indicators L3.economic_indicators
L2.economic_indicators L1.economic_indicators F1.election L1.election election L1.fiscal fiscal
F1.fiscal L1.env_budget env_budget) constraints(5/24)

*GRANGER SUR MODEL (no Budget or Fiscal in MIP, NYT, PIX1ED)

vargranger

Three Equation Model – Impulse Response Functions

```
scalar drop _all
constraint drop _all
matrix drop _all
```

```
***PREPARE FOR GRANGER EXOGENEITY TEST
```

```
constraint 5 [mip]L1.env_budget =0
constraint 6 [mip]env_budget =0
constraint 7 [mip]L1.fiscal = 0
constraint 8 [mip]F1.fiscal = 0
constraint 9 [mip]fiscal = 0
```

```
constraint 10 [nyt]L1.env_budget =0
constraint 11 [nyt]env_budget =0
constraint 12 [nyt]L1.fiscal = 0
constraint 13 [nyt]F1.fiscal = 0
constraint 14 [nyt]fiscal = 0
```

```
matrix B = (1, 0, 0 \ 0, 1, 0 \ 0, 0, 1)
```

```
svar policy nyt mip , lags(1/6) exog (L6.carbon_dioxide_differenced_month
L5.carbon_dioxide_differenced_month L4.carbon_dioxide_differenced_month
L3.carbon_dioxide_differenced_month L2.carbon_dioxide_differenced_month
L1.carbon_dioxide_differenced_month L6.harvest L5.harvest L4.harvest L3.harvest L2.harvest L1.harvest
L6.co L5.co L4.co L3.co L2.co L1.co L6.nox L5.nox L4.nox L3.nox L2.nox L1.nox L6.voc L5.voc
L4.voc L3.voc L2.voc L1.voc L6.so2 L5.so2 L4.so2 L3.so2 L2.so2 L1.so2 L6.pm_10 L5.pm_10
L4.pm_10 L3.pm_10 L2.pm_10 L1.pm_10 L6.endangered_species L5.endangered_species
L4.endangered_species L3.endangered_species L2.endangered_species L1.endangered_species
L6.economic_indicators L5.economic_indicators L4.economic_indicators L3.economic_indicators
L2.economic_indicators L1.economic_indicators F1.election L1.election election L1.fiscal fiscal
F1.fiscal L1.env_budget env_budget ) varconstraints(5,14) noisure bcns(B)
```

```
*GRANGER SVAR -SUR MODEL (no Budget in MIP) FINAL
vargranger
```

```
varirf set Impulse1, replace
```

```
varirf create new, step(12)
```

Four Equation Model – Impulse Response Functions

```
scalar drop _all
constraint drop _all
matrix drop _all
```

***PREPARE FOR GRANGER EXOGENEITY TEST

```
constraint 5 [mip]L1.env_budget =0
constraint 6 [mip]env_budget =0
constraint 7 [mip]L1.fiscal = 0
constraint 8 [mip]F1.fiscal = 0
constraint 9 [mip]fiscal = 0
```

```
constraint 10 [nyt]L1.env_budget =0
constraint 11 [nyt]env_budget =0
constraint 12 [nyt]L1.fiscal = 0
constraint 13 [nyt]F1.fiscal = 0
constraint 14 [nyt]fiscal = 0
```

```
constraint 15 [pix1ed]L1.env_budget =0
constraint 16 [pix1ed]env_budget =0
constraint 17 [pix1ed]L1.fiscal = 0
constraint 18 [pix1ed]F1.fiscal = 0
constraint 19 [pix1ed]fiscal = 0
```

```
matrix B = (1, 0 ,0, 0\ 0,1,0,0\ 0,0,1,0\0,0,0,1)
```

```
svar policy pix1ed nyt mip , lags(1/6) exog (L6.carbon_dioxide_differenced_month
L5.carbon_dioxide_differenced_month L4.carbon_dioxide_differenced_month
L3.carbon_dioxide_differenced_month L2.carbon_dioxide_differenced_month
L1.carbon_dioxide_differenced_month L6.harvest L5.harvest L4.harvest L3.harvest L2.harvest L1.harvest
L6.co L5.co L4.co L3.co L2.co L1.co L6.nox L5.nox L4.nox L3.nox L2.nox L1.nox L6.voc L5.voc
L4.voc L3.voc L2.voc L1.voc L6.so2 L5.so2 L4.so2 L3.so2 L2.so2 L1.so2 L6.pm_10 L5.pm_10
L4.pm_10 L3.pm_10 L2.pm_10 L1.pm_10 L6.endangered_species L5.endangered_species
L4.endangered_species L3.endangered_species L2.endangered_species L1.endangered_species
L6.economic_indicators L5.economic_indicators L4.economic_indicators L3.economic_indicators
L2.economic_indicators L1.economic_indicators F1.election L1.election election L1.fiscal fiscal
F1.fiscal L1.env_budget env_budget ) varconstraints(5,19) noisure bcons(B)
```

*GRANGER SVAR -SUR MODEL (no Budget in MIP) FINAL

```
vargranger
```

```
varirf set Impulse1, replace
```

```
varirf create new, step(12)
```


Five Equation Model – Impulse Response Functions

```
scalar drop _all
constraint drop _all
matrix drop _all
```

***PREPARE FOR GRANGER EXOGENEITY TEST

```
constraint 5 [mip]L1.env_budget =0
constraint 6 [mip]env_budget =0
constraint 7 [mip]L1.fiscal = 0
constraint 8 [mip]F1.fiscal = 0
constraint 9 [mip]fiscal = 0
```

```
constraint 10 [nyt]L1.env_budget =0
constraint 11 [nyt]env_budget =0
constraint 12 [nyt]L1.fiscal = 0
constraint 13 [nyt]F1.fiscal = 0
constraint 14 [nyt]fiscal = 0
```

```
constraint 15 [pix1ed]L1.env_budget =0
constraint 16 [pix1ed]env_budget =0
constraint 17 [pix1ed]L1.fiscal = 0
constraint 18 [pix1ed]F1.fiscal = 0
constraint 19 [pix1ed]fiscal = 0
```

```
constraint 20 [pix1ad]L1.env_budget =0
constraint 21 [pix1ad]env_budget =0
constraint 22 [pix1ad]L1.fiscal = 0
constraint 23 [pix1ad]F1.fiscal = 0
constraint 24 [pix1ad]fiscal = 0
```

```
matrix B = (1,0,0,0,0\ 0,1,0,0,0\ 0,0,1,0, 0\0,0,0,1,0\0,0,0,0,1)
```

```
svar policy pix1ed nyt mip pix1ad , lags(1/6) exog (L6.carbon_dioxide_differenced_month
L5.carbon_dioxide_differenced_month L4.carbon_dioxide_differenced_month
L3.carbon_dioxide_differenced_month L2.carbon_dioxide_differenced_month
L1.carbon_dioxide_differenced_month L6.harvest L5.harvest L4.harvest L3.harvest L2.harvest L1.harvest
L6.co L5.co L4.co L3.co L2.co L1.co L6.nox L5.nox L4.nox L3.nox L2.nox L1.nox L6.voc L5.voc
L4.voc L3.voc L2.voc L1.voc L6.so2 L5.so2 L4.so2 L3.so2 L2.so2 L1.so2 L6.pm_10 L5.pm_10
L4.pm_10 L3.pm_10 L2.pm_10 L1.pm_10 L6.endangered_species L5.endangered_species
L4.endangered_species L3.endangered_species L2.endangered_species L1.endangered_species
L6.economic_indicators L5.economic_indicators L4.economic_indicators L3.economic_indicators
L2.economic_indicators L1.economic_indicators F1.election L1.election election L1.fiscal fiscal
F1.fiscal L1.env_budget env_budget ) varconstraints(5,19) noisure bcons(B)
```

*GRANGER SVAR -SUR MODEL (no Budget in MIP) FINAL

```
vargranger
```

```
varirf set Impulse1, replace
```

```
varirf create new, step(12)
```

Appendix E: Measuring the Advertising Picture Agenda

The advertising picture variable is a monthly count of advertisements, which include pictures, and were published in *Time* magazine between January 1969 and December 1992. Unlike the picture media variable, separate photographs in a single advertisement were not counted individually. Based on the theory that multiple photographs within a single advertisement are included for a singular rhetorical purpose (Messaris, 1997; Scott, date) I counted all photographs within an advertisement as one. Like the editorial measure, I did not include line drawings or diagrams or charts. Realistic artistic renderings were included in the count.

As was noted in the editorial measure, the “environment” is an umbrella concept. In order to remain as parallel as possible to the news media variables, I coded as environmental or greenwashing only the advertisements that were explicitly about the topics covered in Appendix X and Appendix X. Any advertisement that that explicitly mentioned or addressed any of those topics was considered environmental and if it included a photograph or photographs it was counted.

Many advertisements dealt with logging and oil companies’ claims that what they were doing was wise stewardship of the environment. These were clearly greenwashing. In the years surrounding the first energy crisis, the oil companies ran advertisements how they were going to extreme lengths to find new energy sources. Unless the advertisements were explicitly about renewable energy, the advertisements were not counted. Also somewhat tricky were advertisements about fuel efficiency. I decided not to code these as environmental/greenwashing because it became clear that their principal

purpose was selling the efficiency of the car and that was chiefly economic rather than environmental in its objective.

Some examples of regular advertising topics that appeared regularly and were coded as greenwashing were: aluminum producers' claims about recycling; the gas industry's claims of being a clean-burning fuel; union carbide claims of recycling; Steel companies' claims of using natural resources wisely; Caterpillar's advertisements about balancing environmental concerns with economic ones; and the steel industry's claims of steel being the more recyclable material.

Appendix F: Imposing Restrictions on System for Impulse Response Functions

In order to identify moving average coefficients (impulse responses) restrictions must first be imposed. SUR/VAR models are reduced form equations and as such express the value of a variable without current realizations of endogenous variables. Because of this information can be lost when VARs are inverted to construct a moving average. All time t responses are, in other words, held at zero, even when contemporaneous responses (coefficients) may in fact exist. In order to identify moving average coefficients, therefore, one must impose restrictions for contemporaneous effects. As outlined in Soroka (2002) and Enders (2004) there are two common methods of restricting effects at time t . The imposition of restrictions onto a VAR is known as decomposition and involves structural manipulation of the Variance Covariance Matrix (Σ). The two common methods are the Choleski decomposition and the Bernanke/Sims decomposition.⁹² Following Soroka (2002) I employ the Bernanke/Sims decomposition and have constructed the variance-covariance matrix (Σ) with the following restrictions:

$$\begin{bmatrix} e_{(pr\ int)t} \\ e_{(public)t} \\ e_{(policy)t} \\ e_{(picture)t} \\ e_{(advert.)t} \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} \varepsilon_{(pr\ int)t} \\ \varepsilon_{(public)t} \\ \varepsilon_{(policy)t} \\ \varepsilon_{(picture)t} \\ \varepsilon_{(advert.)t} \end{bmatrix}$$

where e are the residuals and ε are the innovations; the number 1 implies

contemporaneous effects and 0 restricts those effects to zero. The variance-covariance

⁹² For other or more thorough discussions of structural and Choleski decompositions see Enders (2004, p 291), Edwards and Wood (1999, p.334) and Soroka (2002, p128).

matrix above is for the five-equation system. For systems with fewer endogenous variables (fewer equations) the matrix is reduced and contemporaneous auto-effects are permitted for those variables as well. For instance, in the three-equation system, only the top three residuals (print, public, policy) and top three innovations and the matrix is restricted to a 3x3 identity matrix.

Appendix G: Belief Importance Items as Continuous Variables

Table G1: Opinion as Dependent Variable

Model 5		
Adjusted R²	.224	
	b	t
Demographics		
Partisanship	-0.018	-0.33
Race	0.090	0.26
Interest	0.092	1.57
News	0.012	0.25
Gender	-0.364	-1.58
Conditions		
Dredge	-0.517	-1.08
Dive	-0.605	-1.28
G.E.	-0.442	-1.41
Sierra	-0.876	-2.74
Image	0.346	1.33
Beliefs		
PCBs	-0.095	-0.7
Health	0.070	0.54
G.E. Impact	0.201	2.35
Cue Givers		
General Electric	-0.137	-2.23
Env. Groups	0.063	1.12
Belief Importance		
Environ. scale	0.166	2.27
Business	0.046	0.75
Family	-0.001	-0.02
Land Rights	-0.118	-2.24
N	168	

Note: Values in bold are significant at $p < .10$ level, two-tailed test. All measures have been coded as noted above. The dependent variable is coded so that higher values reflect a pro-dredging opinion and negative values reflect an anti-dredging opinion. Demographics are as follows: *partisanship* coded 0 (strong Republican) to 6 (strong Democrat); race coded 1 (white) or 0 (other); interest, which measures self-reported interest in the subject, coded 1 (extremely uninteresting) to 9 (extremely interesting); gender coded 0 (male) and 1 (female).

Table G2: Experimental Conditions' Impact on Continuous *Family* and *Business* Belief Importance Measures

Dependent Variable:		Family				Business			
Adjusted R ²		-.009		-.016		.009		.016	
		b	t	b	t	b	t	b	t
Demographics									
Partisanship		0.088	0.98	0.077	0.85	-0.121	-1.29	-0.121	-1.28
Race		-0.398	-0.70	-0.329	-0.56	-0.390	-0.65	-0.492	-0.81
Interest		0.031	0.34	0.039	0.42	-0.087	-0.92	-0.061	-0.63
News		0.036	0.43	0.022	0.26	0.124	1.43	0.129	1.47
Gender		0.435	1.15	0.303	0.77	-0.372	-0.94	-0.369	-0.90
Conditions									
Dredge				0.807	0.70			-0.985	-1.17
Dive				-0.399	-0.50			-0.065	-0.08
G.E.				-0.238	-0.44			0.464	0.82
Sierra				0.559	1.00			0.161	0.28
Image				0.333	0.76			0.292	0.63
N		168		168		168		168	

Note: Regression models for *family* and *business* are estimated using OLS regression. Unstandardized coefficients are reported. Values in bold are significant at p<.10 level, two-tailed test.

Table G.3: Experimental Conditions' Impact on Peoples' Land Rights and Environmental Scale Belief Importance Measures

Dependent Variable:	Peoples' Land Rights				Environmental Scale			
Adjusted R ²	- .004		.007		.043		.023	
	b	t	b	t	b	t	b	t
Demographics								
Partisanship	-0.071	-0.78	-0.096	-1.05	0.146	1.89	0.141	1.80
Race	0.890	1.53	0.634	1.07	-0.054	-0.11	-0.133	-0.26
Interest	-0.019	-0.20	-0.024	-0.25	0.177	2.26	0.167	2.06
News	0.022	0.26	0.016	0.18	-0.050	-0.70	-0.046	-0.62
Gender	0.287	0.74	0.342	0.86	0.486	1.49	0.530	1.55
Conditions								
Dredge			0.744	0.91			0.339	0.48
Dive			1.335	1.65			0.412	0.59
GE			-0.288	-0.52			0.231	0.49
Sierra			0.176	0.31			0.164	0.34
Image			-0.266	-0.60			-0.095	-0.25
N	168		168		168		168	

Note: Regression models for *people's land rights* and *environmental scale* are estimated using OLS regression. Unstandardized coefficients are reported. Values in bold are significant at p<.10 level, two-tailed test.

Appendix H: Measuring the Advertising Picture Agenda

The advertising picture variable is a monthly count of advertisements, which include pictures, and were published in *Time* magazine between January 1969 and December 1992. Unlike the picture media variable, separate photographs in a single advertisement were not counted individually. Based on the theory that multiple photographs within a single advertisement are included for a singular rhetorical purpose (Messaris, 1997; Scott, 1994) I counted all photographs within an advertisement as one. Like the editorial measure, I did not include line drawings or diagrams or charts. Realistic artistic renderings were included in the count.

As was noted in the editorial measure, the “environment” is an umbrella concept. In order to remain as parallel as possible to the news media variables, I coded as environmental or greenwashing only the advertisements that were explicitly about the topics covered in Appendix E and Appendix I. Any advertisement that that explicitly mentioned or addressed any of those topics was considered environmental and if it included a photograph or photographs it was counted.

Many advertisements dealt with logging and oil companies’ claims that what they were doing was wise stewardship of the environment. These were clearly greenwashing. In the years surrounding the first energy crisis, the oil companies ran advertisements how they were going to extreme lengths to find new energy sources. Unless the advertisements were explicitly about renewable energy, the advertisements were not counted. Also somewhat tricky were advertisements about fuel efficiency. I decided not to code these as environmental/greenwashing because it became clear that their principal

purpose was selling the efficiency of the car and that was chiefly economic rather than environmental in its objective.

Some examples of regular advertising topics that appeared regularly and were coded as greenwashing were: aluminum producers' claims about recycling; the gas industry's claims of being a clean-burning fuel; union carbide claims of recycling; Steel companies' claims of using natural resources wisely; Caterpillar's advertisements about balancing environmental concerns with economic ones; and the steel industry's claims of steel being the more recyclable material.

Appendix I: Measure of Print Media Salience.

In order to create a monthly measure of print media attention to the environment,

I ran the following keyword search in Lexis-Nexis.

(environment or ecology or ecological or ecosystem w/3 (protect* or forest or conserv* or preserv* or organization or movement or waste or biodivers* or "global warming") and (pollut* or forest or fish or trees or lake or ocean or sea or landfill or wildlife or species or endangered or habitat or "oil spill" or ozone or "green house" or greenhouse or "acid rain" or "clear cut*" or "clearcut*" or "carbon monoxide")) or (pesticide and (kill or dead or sick or toxic or sick* or cancer or water or animal or fish)) or (dioxin and (pollut* or sick or kill or dead or cancer or water or fish)) or (whale and (kill or protest or kill* or harpoon)) or (overfish* or fish* and ("drift net" or driftnet or fish or salmon or cod or ocean)) or (pollution or pollute or pollut* and (air or water or sea or ocean or lake or land or environment* or ecology or ecolog* or biodiversity)) or (pesticide* and (devastat* or animal* or kill or dead or sick or toxic or sick* or cancer or water or ecology or ecolog*)) or ("climate change" or climate w/2 change or ozone or "global warming" or greenhouse or "green house" and (protection or conserv* or preserv* or organization or movement or waste or biodiversity or "carbon monoxide" or pollutant* or pollution or pollute or environment* or ecolog* or carbon or deplet*)) or (conservation and (wildlife or forest or trees or fish* or animal* or ocean or lake or river or wetland or "national park")) or (conservation w/2 group and (environment or ecolog* or protection or air or water or ocean or forest or animal or wildlife)) or (wilderness or wildlife and (protect* or conserv* or devastat* or destruct* or destroy* or preserv* or environment* or ecolog* or biodiversity)) or (extinct* or extinct and (species or plant or animal or bird or fish) and (biodivers* or ecolog* or environ* or "endangered species" or protect*)) or (recycl* and waste and (environment* or ecolog* or pollut*)) or (endangered w/2 species and (extinct* or habitat or conserv* or preserv* or wildlife or "Gray wolf" or "spotted owl" or condor)) or (clearcut or clearcut* or "clear cut" or "clear cut*" and (log* or tree or forest*)) or (protest and forest*) or (reforest* and (logging or deforest*)) or (toxic or "hazardous waste" and (waste or refuse or dump) and (environment* or ecolog*)) or (wetlands and (ecolog* or environment* or protect* or pollut* or biodivers* or wildlife or ecosystem)) or (sanctuary and wildlife and (environ* or ecolog* or biodivers* or protection)) or (mining or "strip mining" or logging and (destroy or destruction or devastation or erosion w/10 soil)) or greenpeace or "sierra club" or "sea shepherds" or "world wildlife fund" or "environmental defense fund" or "environmental protection agency" or ("acid rain" and (trees or fish or lakes or stream or river or devastat* or destroy or pollution or environment* or ecolog* or ecosyst* or "sulphur dioxide")) or ("old growth forest" and (logging or deforest* or clearcut* or "clear cut*" or forest)) or ("oil spill" or spill w/10 oil or "oil spill*" and (bird or fish or slick or destroy or tanker or destruct* or environment or environment* or ecolog* or devastat*)) or (superfund and (protect* or waste or chemical or environment or cancer or kill or sick or pollut*)) or "Clean Air Act" or "clean Water act" or "endangered species act" And not "book review" or "weekend desk" or*

(corrections w/10 desk) or “news summary” or “style desk” or “sports desk” or “cultural desk” or “real estate desk” or “noise pollution” or “Connecticut weekly” or “long island weekly” or “information bank abstracts” And not (headline) Corrections or briefing.

This list is not entirely comprehensive; it is inclusive enough, however, to capture a broad array of environmental events and issues that were reported on during the time period analyzed (1969 to 1992). For reasons of validity, it is not so important that the count of stories is exhaustive as it is important that the measure is consistent across time. The only concern here, therefore, is whether the terms will be more pertinent for one time period than another. Environmental issues, after all, are not uniform. For instance pollution concerns (including pesticides) dominated environmental concerns and media attention in the first period of environmental salience (roughly 1969 to 1972) whereas the prevalent concerns in the latest spike in environmental salience (roughly 1989 to 1992) were deforestation, global warming and biodiversity.

Following the initial search, a list of stories was compiled. The list was then edited to make sure that no superfluous stories were included. Lexis-Nexis only archives abstracts for The New York Times stories from 1969 to 1980. As such, the search was found to be extremely accurate during this period. The second period, 1980-1992, where full text stories had been archived, required some additional vetting. Since the search was a keyword search of the headline and leads (or abstract) many extraneous stories were returned. The first course of action was to eliminate stories that appeared in sections that should not be included. For other sections, story headlines were reviewed. If further scrutiny was necessary, the article itself was retrieved and read.

Vita

Eric Jenner received his Bachelor of Arts from the University of Victoria in English in 1993 and his Master of Mass Communication from LSU in 1996. Before joining the Manship School's doctoral program, Jenner worked as the International Producer at The New York Times on the Web. In 2002, he served as the Director of Policy for Susan Parker, the Democratic Candidate for Alabama for The United States Senate. He is now the research director at the Policy and Research Group.