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THE THRESHOLD OF PUBLIC ATTENTION

W. RUSSELL NEUMAN

Abstract The analysis reviews time series data for the period 1945 to 1980 on media coverage and corresponding public attention to a set of ten political issues including poverty, racial problems, Watergate, and Vietnam. The study focuses on the early stages of public awareness and the need for a “critical mass” or threshold to move a matter from the status of private concern to a public, political issue. The pattern of evolving public awareness varies dramatically for different types of issues. In some cases, the public appears to have a much steeper “response function” in reacting to real-world cues than the media; in other cases, the media seem to be more responsive. Modeling the growth of attention to public issues with the logistic curve met with modest success. The article concludes with a call for much closer coordination between agenda-setting research and the study of political cognition.

What would happen if all the mass media ceased to function? Doris Graber (1980:ix) develops the scenario as follows:

No news about events from home and abroad, no explanations about shortages or failures of public services, no announcements of new programs and facilities. Presidents, governors and mayors and legislatures at all levels would be slowed or immobilized by lack of information and interpretation. . . . Indeed, media are vital for public and private life: the image of a modern world without them is eerie and frightening.

It is a powerful way to frame the issue. One might imagine further, what if the media conspired for one day not to report anything the president said? How could the president communicate with the nation? Perhaps the chief executive could go out in the backyard of the White House and yell at the milling tourists on the grounds of the Washington Monument and ask them to pass the word along. The National Guard could be mobilized to have soldiers go door to door conveying his

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message. The government simply has no means of its own to communicate with the public. It depends on existing media institutions to conduct its fundamental business—political communications.

Such scenarios have had a significant influence on social scientific models of media effects. Arguing from the extreme case—no media, no effects—we have been developing and testing rather deterministic models of communications effects. I have analyzed the history of the scientific debates about minimal and maximal communications effects elsewhere (Neuman, 1989) and need not retell that story here. But it serves as an appropriate starting point for this analysis.

This study is about metrics and thresholds. It draws on the tradition of agenda-setting research, attempting to develop and refine the model a bit, to move away from its original formulation which was in some ways crudely deterministic. I propose a more complex model of the interaction of media coverage and changing public opinion over time. Perhaps the best way to proceed is to characterize the agenda-setting model as it was developed by McCombs and Shaw in the early seventies, trace the major additions and modifications that have emerged from the literature in the ensuing years, and then develop the argument that the analyses of metrics and thresholds represent important further refinements.

The Evolution of Agenda-Setting Theory

One wonders whether the two young journalism professors, when they set out to conduct a small study of voters in Chapel Hill, North Carolina, in 1968, knew that they were about to set off a small flurry of new research on communications effects. It was an attractive idea. It fit in well with the frustrations of researchers who, sharing the basic paradigm of media centrality, kept finding rather “minimal effects” using the traditional survey research techniques. Drawing on an earlier study of the press and foreign policy (Cohen, 1963), McCombs and Shaw (1972:177) posited that “the press may not be successful much of the time in telling people what to think, but it [may be] stunningly successful in telling its readers what to think about.” Instead of looking just at the phenomenon of persuasion to one side or another of an issue, they proposed to examine the process by which the public comes to define issues as important in the first place.

McCombs and Shaw analyzed local and national media coverage of the 1968 election, quantifying the relative attention given to such issues as public welfare, civil rights, fiscal policy, foreign policy, and the war in Vietnam. They also measured the relative attention given to these issues in aggregate from a small sample of local voters. They found

significant rank order correlations between the media coverage and the public ordering of issues and concluded that this provided evidence of media agenda-setting. They warned appropriately that the limited design and sample did not provide evidence of a causal link. But the tone of their article and the thrust of the several hundred papers which followed in this tradition of analysis generally hone in on the central question of causal effects—in this case salience effects rather than persuasive effects (McCombs, 1981; Rogers and Dearing, 1988).

I am a bit uncomfortable with the determination of the original model, although the basic insight and the corresponding research design are clearly a step forward. A number of the researchers who began to work with the model and collect new data apparently share my unease. Each new article (including a number by the original authors and their students) added qualifications, modifications, caveats, and codicils. The net result was a much more complex and less deterministic model indeed. To simplify the history a bit, we might identify five fundamental revisions of the original agenda-setting hypothesis.

First, a number of observers argued that single-shot data collection left much to be desired. Dynamic analysis of change in agendas over time ought to help ferret out the nature of the process and the question of causal direction. Do the media lead the public or could it be the other way around (Beniger, 1978; MacKuen, 1981; Neuman and Crigler, 1985)?

Second, it was noted that both the media and the public are, in effect, responding to real-world cues. The media did not invent Vietnam or the energy crisis. They are conduits of information. True, they can filter, distort, and amplify, and that is where the agenda-setting model offers the greatest promise. In any case, the model has gradually been reformulated so that the media and the public are now defined as responding to a third variable (real-world cues), and the question of whether the public might react to such cues independently of the media becomes an important part of the analysis (Zucker, 1978; Erbring, Goldenberg, and Miller, 1980).

Third, drawing on some intriguing suggestions in the seminal article by McCombs and Shaw, many researchers tackled the question of which media seem to have the most significant agenda-setting effects. The primary focus is on television versus the print media, in most cases the newspaper. McCombs and Shaw's original hypotheses drawing on the belief that television is a uniquely powerful medium and the fact that its audience is inadvertent and especially large suggested that television may well be the critical agenda setter (Weaver et al., 1981).

Fourth, other scholars raised the issues of audience types. What types of people are most likely to be influenced? Perhaps the less informed are especially dependent on the media for salience cues.

Some analyses developed a typology of people's informational "need orientations"; others examined agenda-setting patterns for different demographic and behavioral categories (Weaver et al., 1981).

Fifth, and finally, the question arose about whether different types of issues may be characterized by unique agenda-setting dynamics. Most of the work here focused on the real-world cues idea and posited a distinction between "obtrusive" and "nonobtrusive" issues. Inflation is seen as a classic example of an obtrusive issue because the public would become aware of it every time they went to the store and need not have the media report the official statistics to realize that this issue affects their lives. Nonobtrusive issues might be represented by foreign events which characteristically cannot be experienced or known by the mass public without the media functioning as a conduit (Zucker, 1978; Neuman, Just, and Crigler, 1988).

Taken together, these refinements of the model result in a much more complex formulation with multiple and interacting contingencies. The agenda-setting process was redefined to be a dynamic and context-dependent phenomenon. The public is not strapped to the chair in front of the television set with their eyes held open like the antihero of *A Clockwork Orange*. They have their own cognitive dynamics, and they do a fair amount of their own filtering, amplifying, and interpreting of the flow of political information (Crigler et al., 1988; Rogers and Dearing, 1988).

This article will propose another element to the dynamic model. Perhaps we can model the general pattern of "responsiveness" of the public and the media to different types of issues. Could it be that there are some issues to which the public is especially attuned? For such issues a passing mention in the press may correspond to a significant public response. In turn, there may be issues hammered away at for years by newspapers and television journalists which meet with no more than a collective yawn from the citizenry. The basic tools I propose to work with are the statistical properties of the correlation (and occasional noncorrelation) of media coverage and public opinion. Thus far, the thrust of most agenda-setting research has focused on the existence and size of the correlation. The coin of the realm is the standardized correlation coefficient, originally rank-order and then later, with time-series data, parametric statistics with an occasional burst of high-powered econometrics.

What has not been examined, however, is the functional form of the correlation and the underlying natural metrics. Perhaps we can learn something if, for the moment, we set aside the issues of leads and lags and causal directions and model the response function itself. Should we expect a lawlike linear function? Does every fiftieth front-page

story in the *New York Times* generate a fixed percent increase in public concern? Would a nonlinear response function make more sense?

The Logistic Curve

According to the legend, it was Mr. P. F. Verhulst at the Ecole Militaire in Belgium in 1844 who first made significant use of the logistic function. It is a fairly straightforward S-shaped curve that proved to be especially helpful in describing patterns of population growth and military logistics. It was rediscovered in the 1940s and found to be useful in modeling sensory responses to stimuli in the field of psychophysics. At about the same time some agricultural economists in the Midwest began working with a similar functional form to model the diffusion of innovation, and this too became an active research field. More recently, of course, its formulation in terms of logits and odds ratios has proved especially helpful in the statistical analysis of a general class of causal models involving categorical data. In its general form it is: $Y = e^x / (1 + e^x)$. It has the important quality of approximating the cumulative normal distribution.

For our purposes its critical quality is that it corresponds to a theory of public attention. Here the relevant literatures are advertising effects research, public information campaigns, and communications research more generally (Naples, 1979; Rice and Paisley, 1981; Rogers, 1983). Let us posit a threshold of public attention. What would it look like? One would assume that at the early stages of an information campaign the going is rough; nobody has heard of you or understands what you are talking about. The gradient of public response to whatever it is you are selling is not likely to be steep.

This notion of gradients of public and media responses to real-world events will prove to be central to our analysis. We propose to review quite closely not only correlational but also slope coefficients in terms of the natural metrics of news stories per unit time and percentages of public concern. For each message or news story at the outset, relatively few members of the audience will be likely to internalize the message. But if you keep at it, it might catch on. People may begin to recognize the message, put it in context, and perhaps even talk about it among themselves somewhat. This is a point stressed by Erbring and his colleagues in their model of audience-contingent effects (Erbring, Goldenberg, and Miller, 1980). Also, the media feed on themselves notoriously, reporting on the issues which seem to be catching on. Ultimately, however, there may be a saturation effect. After a while, another unit increase in media attention no longer corresponds to an

equivalent increase in public response. This second inflection of the curve, the saturation threshold, is well known, for example, to the advertising research community which refers frequently to such phenomena as ad wear-out (Naples, 1979). Thus, if at the outset we are to put forward a model of the shape of the agenda-setting function, as it were, the S-shaped logistic curve is an attractive candidate.

Such a formulation is not really a new idea in the tradition of agenda-setting research. Lutz Erbring and his colleagues in 1980, for example, used logit-based statistics to model the responses of different public groups to particular issues, and they discussed saturation effects and a variety of response curves with respect to time. Likewise, Michael MacKuen's dynamic modeling (1981) develops the underlying calculus and econometrics of the public response function in considerable depth. Erbring and MacKuen, however, devoted most of their attention to the causal mechanisms for different audience subgroups for different types of issues; they dealt with the actual metrics of the relationship and the functional form only in passing.

One of the most intriguing theories of the public response function is Downs's notion of the "issue-attention" cycle (Downs, 1972). He argues that the public perception of most crises does not reflect changes in real conditions as much as the operation of a systematic cycle of heightening public interest followed by a saturation/boredom effect and general decline of attention. He identifies five stages of issue attention: (1) The preproblem stage—the problem exists but has not yet captured public attention. Incidentally, Downs notes, most objective conditions regarding the issue tend to be far worse during the preproblem stage than later when the media and public are making a big to-do about them. He cites the issues of poverty, racism, and malnutrition in the United States as examples. (2) The discovery stage—this is the threshold, the sudden steep ascent of attention and transition from nonproblem to problem. He posits that this stage is often associated with a euphoric enthusiasm about the ability of the society to "do something effective" about the problem at hand. (3) The plateau—there is a gradually spreading realization that the problem is not easily solved and that the problem is, in effect, quite complex. The enthusiasm and the sense of drama wane leading to (4) the decline—a restless public is inattentive and perhaps frustrated. And then (5) the postproblem period—the old problem sinks into a period of prolonged limbo of inattention, although its objective conditions have not changed substantially as the public awaits a fresh issue and new hope.

Particularly interesting is Downs's use of the notion of public boredom. The notion of an aggregate attention span seems a reasonable proposition to explore. Like Erbring and MacKuen, Downs focuses on the time line for the issue at hand. And also like Erbring and MacKuen,

the central dynamic of his model is variation in real-world conditions and the question of how the media and public may or may not respond to such variables. The key to an empirical analysis is reliable real-world measures. They are not impossible to find, but they are rare. The interactions of the consumer price index and concern about inflation allow for a fruitful analysis. But officially derived measures of crime, pollution, racial discrimination, and poverty, for example, tend to reflect variations in the policies and data collection techniques of the various responsible agencies rather than real conditions (De Fleur, 1975). Our strategy here will be to define real-world variation as an important but unmeasured variable and proceed to model the relative response functions of the media and the public.

The Data

In the tradition of a number of recent longitudinal studies of the public agenda, I will rely on the AIPO "Most Important Problem" time series. At fairly regular intervals since 1945 the Gallup Poll has included the question, "What do you think is the most important problem facing this country today?" on its national survey. The open-ended responses were transcribed and coded by the Gallup Organization (for review of the most-important-problem data set, its strengths, and limitations, see Smith, 1980). Ten items were selected which appeared to reflect some interesting dynamics over time. The issues were culled from a much larger list on the basis of the level of public attention and the need for a reasonable diversity of topics for analysis. The issues and time periods selected are

Crime	(1966–80)	Poverty	(1964–80)
Drugs	(1966–75)	Racial unrest	(1954–80)
Energy	(1972–80)	Unemployment	(1945–80)
Inflation	(1945–80)	Vietnam	(1962–75)
Pollution	(1968–80)	Watergate	(1972–76)

Having selected the issues, content analyses were conducted on three media indices—the *New York Times Index*, the *Readers Guide to Periodical Literature*, and the *Vanderbilt Television News Archive Index*. The coding staff of graduate and undergraduate students was carefully trained and supervised. Intercoder reliability checks provided a reassuring average of .95 and intermittent spot checks of indices against the source media indicated that the coding process was both viable and reliable.

The *New York Times* makes an appropriate indicator of newspaper

coverage, although it tends to have somewhat more extensive coverage of both domestic and international politics. It is a recognized source of record and serves as a model for the editors and reporters of other newspapers as well as the wire services (Crouse, 1973). Thirty magazines were monitored from the *Readers Guide* as representative of six broad categories: (1) news (including, for example, *Time* and *Newsweek*), (2) mass appeal (*Readers Digest*), (3) commentary (*Atlantic*, *New Republic*), (4) business (*Business Week*, *Fortune*), (5) science (*Scientific American*), and (6) women's magazines (*McCalls*). The television news data set is based on the CBS Evening News and is measured both in terms of the number of minutes and the number of stories for each issue. Because the TV data are available only from 1972 on, the dynamic of the TV agenda is beclouded by a considerable problem of missing data; the bulk of the analyses reported here will focus on the magazine and newspaper data. When time periods of available data did overlap, the TV agenda generally corresponded quite closely with the other media. There were some exceptions.

The media data have a natural metric. In the pages that follow I will be reporting data averaged from the newspaper and magazine time series. The data are reported in terms of a media index which varies from 0 to 100. The index is straightforward; it turns out that for these time periods and these issues, the monthly newspaper data range up to about 1,000 stories for an issue, and the compendium of (mostly weekly) magazines totals up to 100 per month. Further, it turns out that variation in the two measures corresponds quite closely. So the index is, in effect, a natural metric running from 0 to 100 in tens of newspaper stories per month and the actual number of magazine stories per month.¹

A Test of the Model

The first step is to review the raw metrics of public opinion and media coverage. We know that there is a rough correspondence between the relative quantity of media coverage and the percentage of the population identifying an issue as salient. Vietnam and racial unrest, for example, were identified at their peaks by a majority of respondents as the most important problem facing the country and were, as well, the

1. All analyses were run separately for the newspaper and magazine time series. The results were very consistent, and the results reported here represent the average of the two. There is a great deal in the data which will not be included here. The interactions between the different media measures, the distributed lag modeling, in fact the bulk of the causal analysis, will be set aside for the moment to focus on a descriptive analysis of metrics, thresholds, and functional forms.

two highest-ranking issues in terms of raw quantity of media coverage. But there were exceptions. Watergate, for example, had substantial media coverage at its peak, but the coverage did not correspond to an equivalent peak in public concern. The public was aware and concerned, and certainly fascinated by the drama of unfolding events, but at its peak only 21% of the population identified Watergate as one of the most important problems facing the country. They saw it, apparently, as important but not fundamental or system-threatening in character. In fact, many individuals came to assert that the ultimate outcome of the Watergate era was to offer proof that the system works quite well (Sniderman et al., 1975). Also, on the other side, inflation and unemployment represent issues that have received relatively little coverage in the press, but they seem to be recognized by the mass public as fundamental and important issues. Another example is the energy crisis, as illustrated in Figure 1. In reviewing that figure, one comes to appreciate that sometimes the media and public opinion data covary closely but at other times they do not. In 1974 and 1979 both time series seem to reflect a very similar response to real-world cues. In 1974 it appears to be the media which respond first, in 1979 it is the public. But through the period 1976–1978 the public seems to be reacting independent of media cues.

Sorting through the various measures of range, variance, correlation, and slope for the ten issues and drawing on Downs's theory, I have developed an issue typology which is summarized in Table 1. I have found evidence, at least among the ten issues examined here, of four relatively distinct types: crises, symbolic crises, problems, and nonproblems. Following Downs, it is argued, events and the fashions of politics may well conspire to move an issue from one category to another.

Vietnam, urban unrest, and the energy crisis fall unambiguously into the crisis category. They had fairly clear-cut beginnings, middles, and ends. We finally withdrew American forces from Vietnam, although it was not with the grace and composure the administration had been hoping for. The summers of discontent in the American ghettos broke into open violence following some dramatic confrontations in New York and Rochester, New York in 1963. Urban violence followed an unfortunate yearly cycle but faded dramatically in the late 1960s. And although the basic issue of dependence on a volatile international oil marketplace is still very much with us, the energy crisis (Downs's thesis again) has faded from public and media attention. We have adjusted our energy behavior, and we have adjusted to a redefined set of energy expenses. But the core of the crisis, the sudden upward shift of oil prices, is history. As Table 1 reveals, the peaks of the attention curves are uniformly high, as are the standardized correlations of

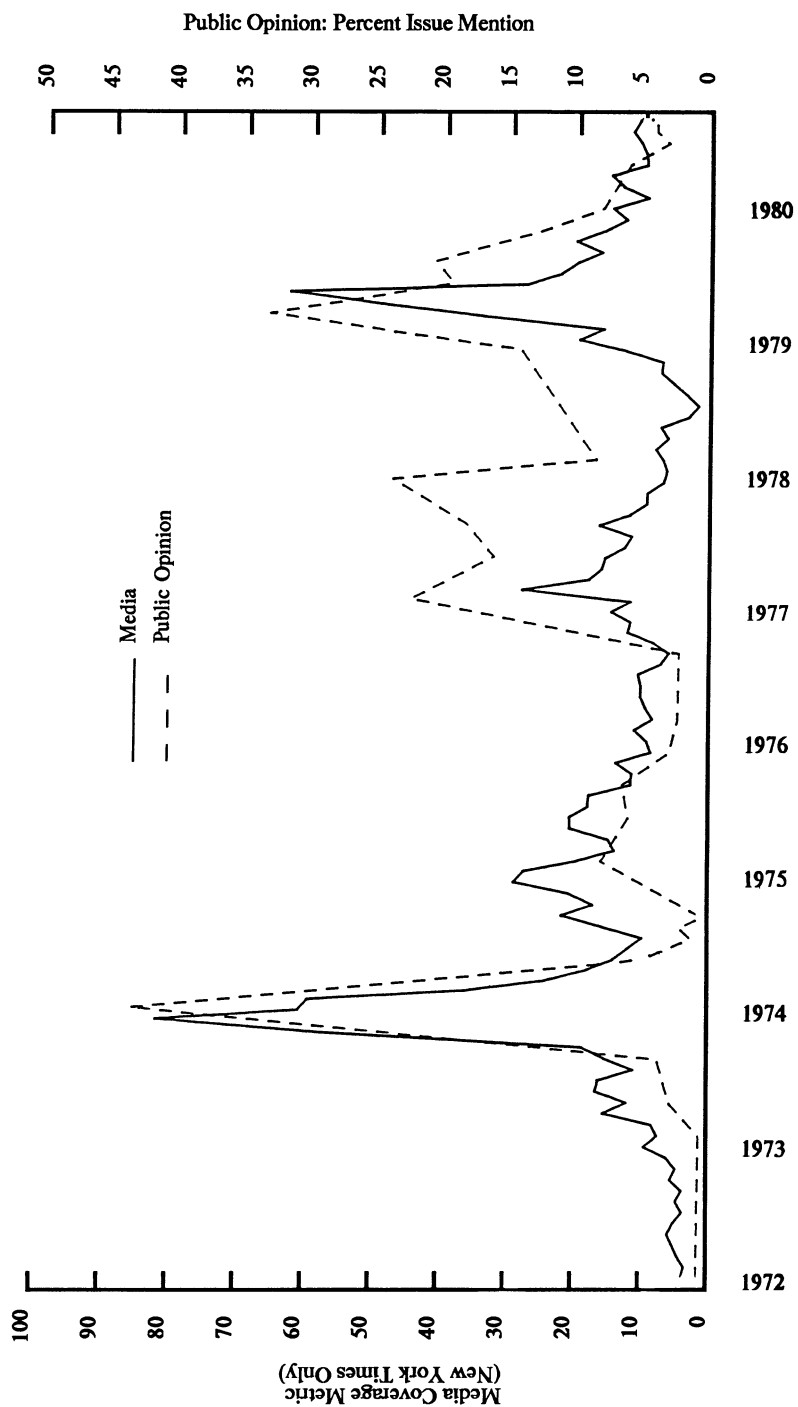


Figure 1. Political Salience of the Energy Crisis: Interaction Between Media Coverage and Public Opinion

Table 1. Issue Typology

	Public Opinion Peak	Media Index Peak	R^2	B	Functional Form	Takeoff Threshold	Nonlinear R
Crises							
Vietnam (1962–75)	55%	100	.67	.7	Logistic	15	.79
Racial unrest (1954–80)	52	75	.50	.9	Logistic	20	.53
Energy crisis (1972–80)	43	60	.56	.9	Logistic	7	.59
Symbolic crises							
Watergate (1972–76)	21	50	.62	.3	Logistic	15	.69
Drugs (1945–80)	12	15	.32	.5	Logistic	5	.35
Pollution (1968–80)	10	20	.23	.3	Logistic	7	.27
Poverty (1964–80)	8	20	.18	.3	Logistic	5	.20
Problems							
Inflation (1945–80)	81	25	.24	2.9	Linear	—	—
Unemployment (1945–80)	62	15	.25	2.5	Linear	—	—
Nonproblems							
Crime (1966–80)	17	25	n.s.	—	—	—	—

media–opinion covariation. These “problems” are least like the kinds of issues Downs described because they do have a real-world life cycle and are not simply enduring social problems.

The next category, however, labeled here “symbolic crises,” corresponds much more closely to the dynamic Downs described and draws on the notion of symbolic politics developed by Edelman (1964, 1989). The problems of drugs, pollution, and poverty have been with us for some time and are not likely to be fundamentally resolved in the near future. But in each case a combination of events and the responses of the government, the public, and the media leads to a public definition of the issue as a problem of crisis proportions for a limited period of time. In the case of drugs, as some have noted, it was not until middle-class white kids discovered marijuana and hallucinogens that the issue of drug abuse became, in effect, a public issue. With the issues of poverty and pollution, some observers have pointed to popular books

by Michael Harrington (1962) and Rachel Carson (1962), respectively, as prime elements. Others have characterized them as naturally growing grass-roots concerns which crystalized into dramatic programs or events as the war on poverty, and Earth Day, or the Three Mile Island incident.

Watergate is a little more difficult case to fit. There was a clear-cut event, the break-in itself. There were a number of subsidiary events associated with the cover-up. But the basic history of Watergate was the dramatic and gradual process of revealing new fragments of information following Judge Sirica's refusal to accept guilty pleas from the original crew of inept burglars. Thus, unlike Vietnam, urban unrest, and the energy crisis, Watergate was fundamentally a symbolic political event, an event controlled much more by public definitions of what was important than by an ongoing series of new events.

In these symbolic crises, the peak levels of public concern and media coverage fall into the middle range—roughly 10% to 20% public opinion levels and a range of 15 to 50 on the media metric. Again the standardized correlation coefficients are relatively high, but not as high as the crisis category, as we might expect given their more symbolic character. In the final two categories, however, we find a different pattern. In the problems category I include the twin problems of inflation and unemployment. Both have periodic and sometimes dramatic crises of sudden change, and there is a rough covariation between media coverage and public opinion. But the metrics are entirely different: The overall levels of public concern as measured here by the Most Important Problem item represent the two highest levels of the ten issues examined, peaking at 81% for inflation in 1975 and at 62% for unemployment following the Second World War in 1946. Clearly, the raw data would indicate that the media and the public do indeed have different response functions to economic/social issues of this sort. The media dutifully cover the release of the latest government statistics on a regular basis. When the fluctuations are dramatic they do their best to cover both the human interest/personal impact question and the complex underlying issues of public policy and economic theory. But it is a story without a story line. After repeated interviews with various economic advisors about a series of abstract and seemingly intractable problems, even the most enterprising and well-motivated journalists will be tempted to turn their attention to other matters. We will return shortly to these issues in our examination of slopes and functional forms.

Finally, crime turned out to be our critical example of a nonproblem. There is fluctuation in crime and crime coverage. We had anticipated seeing a perception of crime waves or crime crises of some sort, and there are spikes of concern evident in the time series in the sixties and

seventies but, as yet, the issue has not appeared to move from the status of an enduring social problem to a symbolic crisis. Here we find low peaks of public concern and a fairly steady and moderately high level of media coverage, but no correlation over time between the two. Such conclusions are also reached by Beniger (1978). But Schuman and Presser (1981) note that crime is a particularly difficult topic because it is generally perceived as a local issue, and it may not be an appropriate metric for national concern.

The Response Function

Looking first at the linear regression equations, the question is simply, what is the slope? Given a unit increase in media coverage, what is the corresponding unit increase for the public? Recalling that there was a natural and quite helpful coincidence in each of the data sets, a ceiling at roughly 100 units, we have an intuitive interpretation of the slope coefficient. For the crisis and symbolic crisis issues, each unit increase in news coverage (that is, for one additional story per month in the compendium of thirty magazines, and for each 10 additional stories per month in the *New York Times*) was accompanied by a corresponding increase of from .3 to .9 percentage points in the public opinion measure. Such metrics seem to make intuitive sense. If there are fifty stories among the magazines in a given month on a single issue, it would seem to be a matter of critical concern. If in the *New York Times* the tally was 500 there would be numerous stories each day, a well-covered issue indeed. And such figures would correspond roughly to a level of public concern ranging from 15% (which is itself rather high) to 45%, which would rank among the highest levels of concern for any issue.

Returning to Table 1, we see that slopes tend to be the highest for the crisis issues and at the middle and lower levels for the symbolic crises; perhaps we have identified a critical difference between the two. The public appears to be less responsive to the symbolic crises. Two or perhaps three times as many stories in the media are required before one finds evidence of an equivalent level of public concern. The Watergate crisis, as noted above, is a good example: although the bulk of the public followed the story, understood the central facts, and even came to know the cast of characters pretty well, the issue simply did not translate into the same kind of politicized concern that was manifested by the urban crisis which preceded it or the energy crisis which followed it.

The problem issues, however, generate slopes of a different order of magnitude. Here, each unit increase in coverage corresponds to an

equivalent increase of public concern of from 2.5 to almost 3 percentage points. This is reflected in the peak levels. A media index score of 25 (25 stories in the magazine compendium or 250 stories in the *Times*) corresponds in this case to a peak of 81% public concern.

There would appear to be ample evidence indeed that the media and the public have unique dynamics in their response to real-world cues. This leads to our final point, the hypothesis about thresholds and functional forms. We have limited ourselves thus far to linear estimates. We have reviewed the curves with respect to time and found a confusing rhythm of varying levels of covariation. Is there a convenient summary measure of the functional form of these patterns?

I would propose the simple bivariate scatterplot— X with respect to Y rather than X and Y with respect to time.² There were hints of something like a threshold or floor effect in the time lines. One sees the media and public opinion levels bouncing along at relatively low levels in what appears to be a sort of random Brownian movement before they both take off in response to a crisis event. Because few issues get to very high levels of attention, we have less opportunity to examine the hypothesized saturation effect at the top of the logistic curve. Is there evidence of the threshold phenomenon and logistic function?

Again, it depends on the issue. Generally speaking the answer is yes, there is consistent evidence of a curvilinear relationship between the volume of media coverage and the level of public concern. The curvilinearity is not especially dramatic, however, and the response function in most cases can be approximated by linear models. The Vietnam issue described in Figure 2 provides an example. There is evidence of a takeoff point at the media index level of about 15. Up until that level there seems to be no corresponding increase in public concern at all. In the range of 15 to 50 we see a sharp linear increase and over 50 a gradual leveling off. The general functional form of the logistic curve proves again, since Verhulst's first work in 1844 it seems, an appropriate model for a general class of behavioral phenomena. But since most issues do not reach the levels of the Vietnam issue, most might be modeled by a simpler power function to capture the bottom threshold-takeoff phenomenon. Most of the other issues are roughly linear (in the case of the problem issues, strictly linear), so the use of nonlinear modeling may ultimately prove to be more of a refinement than a breakthrough in understanding the dynamics of the public agenda.

2. For the sake of convenience and continuity, variations in media attention are modeled on the X axis and public attention on the Y axis, and accordingly the regressions characterize Y as a function of X . Careful readers will note that this is a modeling convenience, not a causal assertion.

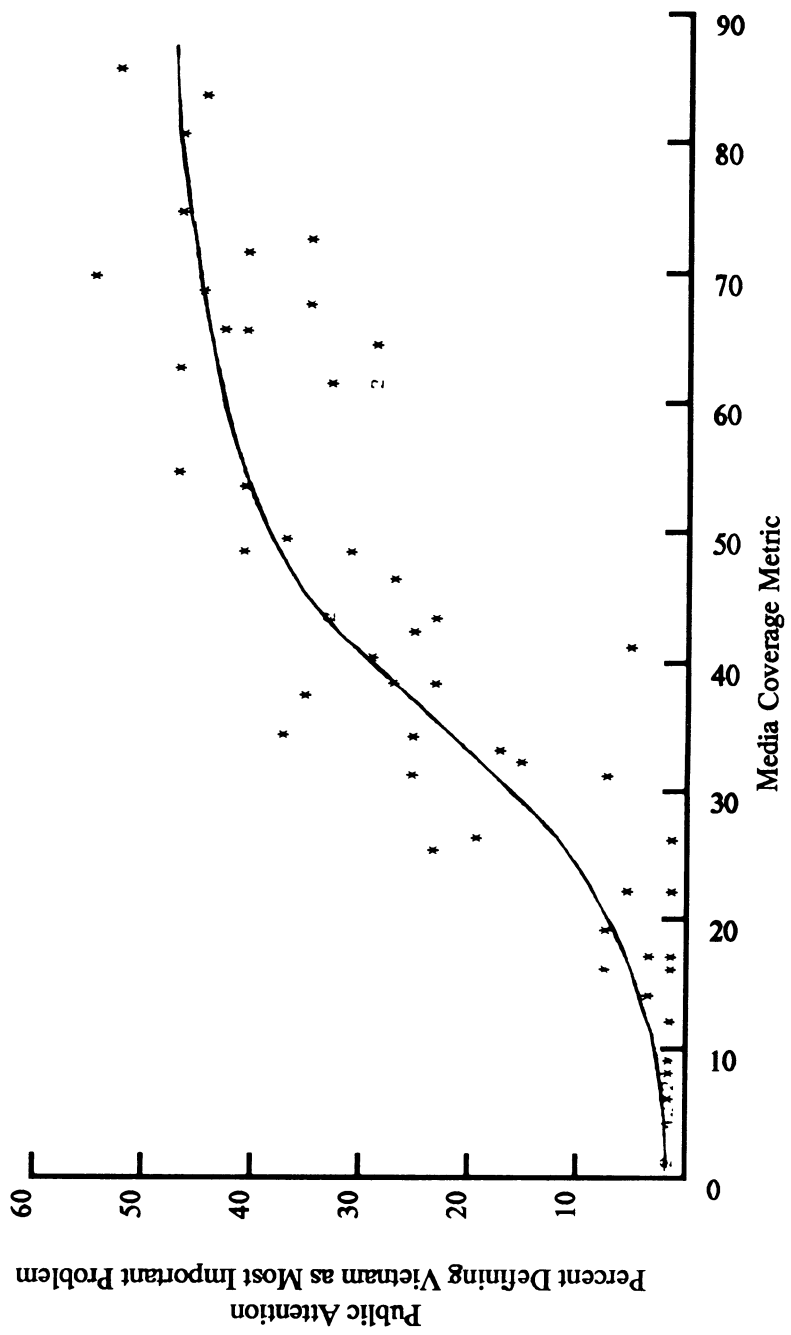


Figure 2. Agenda-Setting Response Function: The Issue of Vietnam (New York Times Only)

A Concluding Note

I do not mean to joust with a straw man. In framing the analysis as an alternative to overly deterministic and mechanical models of media agenda setting, it would be unfair to characterize the recent thrust of the research literature as a simplistic model of media determinism. Clearly, the research community is in agreement that the agenda-setting concept is important and the data on the dynamics of issue salience are promising. It is also in agreement that the basic model of media–public opinion covariance has to be qualified by a useful typology of issue types, issue publics, and context effects. The effort in this analysis was to reinforce this movement in the literature, with the addition of a few additional elements to the modeling.

In some cases I find myself at odds with the near-unanimous advice from methodologists that it is always better to report correlational coefficients in unstandardized form. It is the familiar debate between *B*s versus betas. When there is no natural metric like dollars or years or proportion of the vote by which the reader might interpret such slope coefficients, I generally appreciate seeing standardized coefficients included which might be interpreted in terms of percent of variance explained. In the case of public agenda data, however, we are most fortunate. We have a natural range of 0 to 100% of the public concern about most important problems. We have also an intuitive metric for media coverage in terms of the number of stories (or, equivalently, numbers of minutes or column inches). My recommendation, then, is to look closely at the slopes and natural metrics. I think in this case it is an appropriate corrective to our thinking in terms of standardized correlations which in effect throw away critical data about the level of variation and range of different types of issues. On the matter of functional forms of the public and media response to real-world cues, we find consistent but somewhat weak evidence for the threshold and saturation effects which Downs and other analysts had predicted. The biggest differences issue by issue seem to be in the slopes, that is, the relative responsiveness to different issue types. Nonetheless, the underlying theory of the growth and decline of public issues, which underlies the threshold model, offers special promise. Detailed depth interview research on specific issues, how they are covered in the media and how they are conceptualized by mass publics, may hold the key to the puzzle (Crigler et al., 1988; Gamson, 1988; Graber, 1988).

We need to understand what in the nature of an event or issue pushes it over the threshold, what defines it as a public rather than private concern. The work of Kinder, Sears, and their colleagues on symbolic politics is likely to be especially relevant (Kinder and Kiewiet, 1981; Iyengar and Kinder, 1987; Sears et al., 1980). We have to find a link

between the aggregate time-series data of the agenda-setting domain and the parallel inquiries of our colleagues in the field of political cognition. That is my agenda for agenda-setting research.

Bibliography

- Beniger, James R. (1978)
 "Media content as social indicators: The Greenfield index of agenda-setting." *Communication Research* 5:437-453.
- Carson, Rachel Louise (1962)
Silent Spring. Boston: Houghton Mifflin.
- Cohen, Bernard C. (1963)
The Press and Foreign Policy. Princeton: Princeton University Press.
- Crigler, Ann, Marion Just, W. Russell Neuman, Deborah Campbell, and Jaqueline O'Connell (1988)
 "Understanding issues in the news." Paper presented at the annual meeting of the American Association for Public Opinion Research, Toronto.
- Crouse, Timothy (1973)
The Boys on the Bus. New York: Random House.
- DeFleur, Lois (1975)
 "Biasing influences on drug arrest records." *American Sociological Review* 40:88-103.
- Downs, Anthony (1972)
 "Up and down with ecology—The 'issue-attention cycle.'" *Public Interest* 28:28-50.
- Erbring, Lutz, Edie N. Goldenberg, and Arthur H. Miller (1980)
 "Front-page news and real-world cues." *American Journal of Political Science* 24:16-49.
- Edelman, Murray (1964)
The Symbolic Uses of Politics. Urbana: University of Illinois Press.
- (1989)
Constructing the Political Spectacle. Chicago: University of Chicago Press.
- Gamson, William A. (1988)
 "A constructionist approach to mass media and public opinion." *Symbolic Interaction* 11:161-174.
- Graber, Doris A. (1980)
Mass Media and American Politics. Washington: CQ Press.
- (1988)
Processing the News. 2d ed. New York: Longman.
- Harrington, Michael (1962)
The Other America: Poverty in the United States. New York: Macmillan.
- Iyengar, Shanto, and Donald R. Kinder (1987)
News That Matters. Chicago: University of Chicago Press.
- Kinder, Donald R., and Roderick Kiewiet (1981)
 "Sociotropic politics." *British Journal of Political Science* 11:129-161.
- MacKuen, Michael Bruce (1981)
 "Social communication and the mass policy agenda." Pp. 19-144 in M. MacKuen and S. Coombs (eds.), *More Than News*. Beverly Hills, CA: Sage.
- McCombs, Maxwell (1981)
 "The agenda setting approach." Pp. 121-140 in Dan Nimmo and Keith Sanders (eds.), *Handbook of Political Communication*. Newbury Park, CA: Sage.
- McCombs, Maxwell E., and Donald L. Shaw (1972)
 "The agenda-setting function of the mass media." *Public Opinion Quarterly* 36:176-187.

- Naples, Michael J. (1979)
Effective Frequency. New York: Association of National Advertisers.
- Neuman, W. Russell (1989)
"Parallel content analysis." Pp. 205–289 in George Comstock (ed.), *Public Communications and Behavior*, vol. 2. Orlando: Academic Press.
- Neuman, W. Russell, Marion Just, and Ann Crigler (1988)
"Knowledge, opinion, and the news: The calculus of political learning." Paper presented at the annual meeting of the American Political Science Association, Washington.
- Neuman, W. Russell, and Ann Crigler (1985)
"Patterns of political cognition." Pp. 223–240 in Sidney Kraus and Richard Perloff (eds.), *Mass Media and Political Thought*. Newbury Park, CA: Sage.
- Rice, Ronald E., and William J. Paisley (1981)
Public Communication Campaigns. Newbury Park, CA: Sage.
- Rogers, Everett M. (1983)
Diffusion of Innovations. 2d ed. New York: Free Press.
- Rogers, Everett M., and James W. Dearing (1988)
"Agenda-setting research: Where has it been, where is it going." Pp. 555–594 in James A. Anderson (ed.), *Communication Yearbook 11*. Newbury Park, CA: Sage.
- Schuman, Howard, and Stanley Presser (1981)
Questions and Answers in Attitude Surveys. Orlando: Academic Press.
- Sears, David, Richard R. Lau, Tom R. Tyler, and Harris M. Allen, Jr. (1980)
"Self-interest vs. symbolic politics in policy attitude and presidential voting."
American Political Science Review 74:670–684.
- Smith, Tom W. (1980)
"America's most important problem—A trend analysis 1946–1976." *Public Opinion Quarterly* 44:164–180.
- Sniderman, Paul, W. Russell Neuman, Jack Citrin, Herbert McClosky, and J. Merrill Shanks (1975)
"The stability of support for the political system: The impact of Watergate."
American Politics Quarterly 34:437–457.
- Weaver, Donald L., Doris A. Graber, Maxwell McCombs, and Chaim H. Eyal (1981)
Media Agenda-Setting in a Presidential Election: Issues, Images and Interest. New York: Praeger.
- Zucker, H. G. (1978)
"The variable nature of news media influence." Pp. 225–240 in Brent Ruben (ed.), *Communication Yearbook 2*. New Brunswick, NJ: Transaction Books.