

ISSUE COMPETITION AND ATTENTION DISTRACTION: A ZERO-SUM THEORY OF AGENDA-SETTING

By Jian-Hua Zhu

Classic agenda-setting studies implied a zero-sum process, in which issues compete for media and public attention. Recent time series analyses on single issues have disregarded this central assumption. Evidence from a variety of sources was cited to illustrate that agenda-setting is a zero-sum game, due to the limited carrying capacity of the public agenda. A mathematical model was proposed to incorporate the strengths of both the classic approach and the time series technique. The model was tested with data on three recent issues. Results reveal both mutual competition and one-way attraction among issues.



Agenda-setting research has encountered a dilemma between conceptual precision and methodological sophistication for some time. Based on the zero-sum assumption, the classic design of rank-order correlation examines the competition among multiple issues. However, this design is statistically weak. The recent trend has been the use of time series analysis. While more powerful, most of the time series studies include only one issue in an equation. Therefore, the zero-sum principle is lost in the pursuit of methodological rigor. In this article, we propose a new approach that incorporates both the zero-sum principle and the time series technique.

The zero-sum principle is a simple, familiar and widely used concept. Applied to agenda-setting, zero-sum describes a fundamental contradiction in a pluralist democracy: the vast number of social issues that are being raised on the one hand and the limited carrying capacity that the public agenda possesses to handle these issues on the other hand. The inevitable consequence of this contradiction is intense competition among issues. The addition of any new issue onto the public agenda is at the cost of other issue(s).

The term "public agenda" here refers to the totality of five components: (1) interest groups' agenda, (2) media agenda, (3) audience members' agenda, (4) policymakers' agenda, and (5) policy agenda. The interest group agenda is the issues that various interest groups promote.

Jian-Hua Zhu is assistant professor of communication at the University of Connecticut. The study was supported in part by the University of Connecticut Research Foundation. An earlier version of this article was presented to the Midwest Association for Public Opinion Research, Chicago, November 1991. The author is grateful to David P. Fan for advice in the mathematical modeling, to J. Ronald Milavsky for comments and help in editing and to Huailin Chen for help in collecting part of the data.

**Journalism
Quarterly**
Vol. 69, No. 4
Winter 1992
825-836
©1992 AEJMC

The media agenda is the prominence of these issues in news coverage. The audience agenda is the salience of these issues as perceived by audience members. The policymaker agenda is the preference among these issues that each policymaker has, which is different from the priority of the issues agreed upon by all, or the majority, of policymakers. We call the latter the policy agenda. Note that our definition of public agenda resembles in many respects Hilgartner and Bosk's public arenas model; however, we prefer "public agenda" to "public arenas."¹

Those components play different roles in the formation of public agenda. Interest groups initially identify, define and raise social issues. Therefore, their agenda is the source of the public agenda. The media select, redefine and amplify some of the interest group issues, with both ordinary citizens and policymakers as the target. In this sense, the media are instrumental. The policy agenda, often measured in budgetary terms, is the final outcome of the public agenda-setting process. Two observations can be made about this process. First, all the components of the public agenda have some limits on their issue carrying capacity, though to different degrees. Second, public agenda-setting is a filtering process with a sequentially decreasing capacity. Together, agenda-setting follows the rule of a zero-sum game, in which the rise of one issue results in the fall of another.

Interest Group Agenda

Interest groups are legitimate in a pluralist democracy. With the declining influence of political parties and unions, and the advancement of new communication technologies, interest groups have proliferated over the last two decades.² Although many interest groups focus on a single issue, the rapid growth in the number of interest groups greatly increases their total capacity of issue creation. Here, new technologies, though not a causal factor, play a vital role. Computer desktop publishing, computerized databases of mass mailing labels and inexpensive video cameras have made it possible for myriad interest groups, large or small, to run fundraising, newsletters, campaigns and other grass-roots activities.

However, the explosive growth of interest groups has leveled off recently. The success of some interest groups has inspired other people with similar characteristics to follow suit. Because of the overlap in interests, the new groups compete with their role models for the same

¹ Steven Hilgartner and Charles Bosk, "The Rise and Fall of Social Problems: A Public Arenas Model," *American Journal of Sociology*, 94: 53-78 (July 1988). The term public agenda has been a standard term in the agenda-setting literature. In addition, the scope of the public arenas model is broader than the agenda-setting process discussed here. While agenda-setting mainly concerns issue attention, the public arenas model addresses not only issue attention, but also issue definition which is more in line with media framing.

² Jeffrey M. Berry, *The Interest Group Society*, (Boston: Little, Brown, 1984). Also see Benjamin Marquez, "The Problems of Organizational Maintenance and the League of United Latin American Citizens," *Social Science Journal*, 28: 203-225 (1991); Paul E. Johnson, "Asymmetries in Political Entry," *European Journal of Political Economy*, 6:377-398 (December 1990); and Anton D. Lowenberg, "An Economic Theory of Apartheid," *Economic Inquiry*, 27: 57-74 (January 1989).

constituents. The success of some interest groups has also mobilized their rivals to get organized as well. The consequent competition between them can largely cancel out the efforts by both sides. Quickly, interest groups have reached the upper ceiling of their organizational resources. Now, the typical scenario of a zero-sum game is in place, in which the rise of a new group is at the expense of another.³

The traditional "agenda-setters," including the newscasts on networks, the front pages of leading newspapers and newsmagazines are a constant "news-pie." A typical network newscast runs about 22 minutes, excluding commercials, in which about 12 to 15 stories can be broadcast. While newspapers have a larger news hole, a similar or fewer number of stories can be printed on the front page. For example, *The New York Times* regularly runs 8 stories plus 1 photo, or 7 stories plus 2 photos on its front page. Therefore, reporters, politicians, corporate PR staffs and interest groups have to compete to get their slice of the conventional news-pie.⁴

Media Agenda

Can the size of the news-pie be expanded? Technologically, it appears so. The 24-hour news on CNN is a case in point. The broadcast networks also have placed more news or infotainment programs during prime time. In addition, more independent stations broadcast their versions of local and national news. The proliferation of special magazines and newsletters, largely distributed by interest groups, adds to the expansion of news outlets. These developments certainly increase the sheer volume of material on various issues. However, there is little empirical evidence suggesting that the total number of issues presented on the media agenda is also increased. What we are more certain of is that the expansion of news outlets does not enlarge the audience agenda, which is less likely to expand.

The limits on the audience's resources include time, access and psychological capacity. Time is a constant (24 hours a day) for everyone. Therefore, people's exposure to different media is competition within their disposable leisure time. The surge of television in early years caused a decline in radio listening and newspaper reading, while people's recent interest in away-from-home activities has reduced television viewership.⁵ Access to the traditional media outlets generally presents less of a problem, but a substantial proportion of the population cannot afford cable. The prime constraint on the audience's capacity of issue carrying, however, is not physical exposure but psychological process.

Audience Agenda

Cognitive psychologists have long contended that human beings have limited capacity for information processing. Limited capacity

³ *Ibid.*

⁴ See Pamela J. Shoemaker and Stephen D. Reese, *Mediating the Message: Theories of Influences on Mass Media Content*. (New York: Longman, 1991).

⁵ John Robinson, "Television and Leisure Time: A New Scenario," *Journal of Communication*, 31: 120-130 (Winter 1981).

manifests itself at various levels, such as attention, perception, memory and recall. Among these processes, limits in attention resources perhaps affect the audience agenda most. Physically, a person can focus attention on only a limited number of objects. Mentally, coping with several incoming signals can easily create fatigue and reduce alertness. Unlike machines that will break down when overloaded, the human cognitive system handles information overloading with two strategies: either by stopping intake of new information and continuing current tasks (the "data-limiting" strategy) or continuing to receive new information while degrading current performance (the "resource-limiting" strategy).⁶ Although there is no consensus on which strategy dominates, the conclusion is the same: human information processing is a zero-sum game.

Psychological constraints operate not only at the cognitive level, but also at the emotional level. Hilgartner and Bosk draw a line between "master status" and "surplus compassion." The former refers to the concern about the problems that directly affect an individual, while the latter is an altruistic concern about issues less relevant to the person. "Once the priorities of their master status have been addressed, there may be very little surplus compassion left over for social issues with less personal significance."⁷ When the national economy is in a downturn, for example, there is generally less concern about international problems.

Limited carrying capacity of the audience agenda has been detected in the agenda-setting literature. Critics have complained that many agenda-setting studies limit audience members to name one or two issues as the most important. This method may well create an artificially limited audience agenda. However, several studies have allowed survey respondents to name as many issues as they desire. Even under this situation, the audience can offer, on the average, no more than four or five issues.⁸

Policymaker and Policy Agenda

We have distinguished the policymaker agenda from the policy agenda, because the former involves attention allocation regulated by the same individual factors discussed above, whereas the latter involves resource allocation which is based on the net balance of competing attentions held by these individual policymakers.⁹ Policymakers, just like ordinary citizens, are subject to various physical and psychological constraints in attention allocation. Moreover, policymakers are exposed to a very large number of issues everyday. Therefore, a strategic allocation

⁶ Donald A. Norman and Daniel G. Bobrow, "On Data-limited and Resource-limited Processes," *Cognitive Psychology*, 7:44-46 (1975).

⁷ Hilgartner and Bosk, *op. cit.*, p. 60

⁸ Hans-Bernd Brosius and Hans K pplinger, "Linear and Nonlinear Models of Agenda-Setting in Television," *Journal of Broadcasting and Electronic Media*, 36: 5-23 (Winter 1992).

⁹ See Myles Martel, *Political Campaign Debates: Images, Strategies and Tactics*, (New York: Longman, 1983).

of attention is even more crucial for public officials. Eyestone has summarized it: "for a number of reasons (publicity, simplicity, personal preferences, lack of resources, political pressures) politicians often prefer to deal with one problem at a time."¹⁰

The limited issue carrying capacity of each individual policymaker does not mean that the collectivity of these individuals shares the same issues. However, the scarce resources force the decision making body, as a whole, to prioritize the issues brought to the policy agenda, which by its definition is a zero-sum game. Therefore, the policy agenda can be measured best by budget allocation; as Lasswell has put it, politics is "who gets what, when and how."¹¹

Among the five component agendas, the limited carrying capacity of the audience agenda is most fundamental. By saying that, we do not necessarily mean that the ordinary citizens have great, and direct impact on the final outcome of policymaking.¹² However, the inability of the audience to deal with concurrently multiple issues ultimately limits the capacity of the system. This is probably the best justification for agenda-setting research.

Although never explicitly stated, this zero-sum idea was deeply built into the classic design of agenda-setting research. McCombs and Shaw used rank-order correlation to compare the audience's perceived salience of five campaign issues to the prominence of the same issues in the media.¹³ Coincidentally, Ray Funkhouser employed the same approach in another seminal study.¹⁴ While many studies have followed this rank-order design, probably without recognizing the underlying zero-sum assumption, other scholars have been dissatisfied with it. Among the various criticisms, two problems stand out. First, the lumping of multiple issues into one analysis ignores the idiosyncratic characteristics of these issues.¹⁵ Second, the rank-order correlation, a non-parametric technique, is too weak to make causal inference, and it often wastes quasi-metric information in the data.¹⁶

Zero-Sum in Agenda- Setting Research

¹⁰ Robert Eyestone, *From Social Issues to Public Policy* (New York: John Wiley & Sons, 1978), p. 22.

¹¹ Herald D. Lasswell, *Politics: Who Gets What, When and How* (New York: Meridian, 1955).

¹² However, there is some evidence. See S. Farkas, Robert Y. Shapiro and Benjamin I. Page, "The Dynamics of Public Opinion and Policy," presented at the American Association for Public Opinion Research, Lancaster, Pennsylvania, May 1990; Page, B.I., & Shapiro, R.Y. (1983). Effects of public opinion on policy. *American Political Science Review*, 77, 175-190. •

¹³ "The Agenda-Setting Function of Mass Media," *Public Opinion Quarterly*, 36: 176-187 (Summer 1972).

¹⁴ "The Issues of the Sixties: An Exploratory Study in the Dynamics of Public Opinion," *Public Opinion Quarterly*, 37: 62-75 (Spring 1973).

¹⁵ J. P. Winter and C. H. Eyal, "Agenda-Setting for the Civil Rights Issue," *Public Opinion Quarterly*, 45: 376-383 (Fall 1981).

¹⁶ Michael MacKuen, "Social Communication and the Mass Policy Agenda," in Michael MacKuen and S. L. Coombs, eds., *More Than News: Media Power in Public Affairs* (Beverly Hill, Calif.: Sage, 1981), pp. 19-144.

Several new approaches have been used.¹⁷ Time series analysis (TSA) with aggregated data on a single issue has been particularly popular. Compared with the rank-order correlation, this TSA approach has several advantages. First, TSA provides a strong basis for causal inference.¹⁸ TSA also fully utilizes parametric information, by which one can precisely link the change in the number of news stories to the change in the percentage of public opinion.¹⁹ Finally, TSA includes only one issue in a regression equation, which allows the study of the unique features of that issue.

While the first two features of TSA significantly strengthen agenda-setting research, the third feature is quite doubtful. By examining one issue in an equation, this single-issue design assumes that the agenda-setting process operates on an issue independently of all other issues concurrently reported in the media and of concern to the public. The single-issue approach not only disregards the competitive nature of agenda-setting at the conceptual level, but also overestimates agenda-setting effects at the statistical level, by excluding competing issues that correlate with the issue under study.²⁰

In short, in cleaning the "bathtub" of agenda-setting research, the new TSA on single issues has thrown away both the water and the baby. That is, the advancement in methodological sophistication has departed from the original zero-sum assumption, with some undesirable consequences. Now, the challenge is how to preserve the zero-sum principle while taking advantages of the power that TSA offers.

Method

Mathematical Model. In the initial phase of this project, our strategy was simply to expand traditional time series analysis by including the audience's salience and the media coverage of competing issues. This expanded model expresses the change in public salience of an issue as a combination of (1) agenda-setting effects due to past coverage of that issue, (2) issue-competition effects due to past media coverage of competing issues, (3) attention-distraction effects due to the audience's current concern about these competing issues. A preliminary test of this expanded model on three issues suggested that the traditional TSA model did overestimate the agenda-setting effect on the principal issue between 30% and 78%, and that the competition impact was mainly due to the public's current concern about the competing issues rather than due to past media coverage of these issues.

¹⁷ A summary of these methods can be found in Maxwell McCombs, "The Agenda-Setting Approach," in Dan D. Nimmo & Klaus R. Sanders, eds., *Handbook of Political Communication*, (Beverly Hill, Calif.: Sage, 1981), pp. 121-140.

¹⁸ MacKuen, *op. cit.*, p. 29.

¹⁹ This advantage was repeatedly emphasized by Russell Neuman, "The Threshold of Public Attention," *Public Opinion Quarterly*, 54, 159-176 (Summer 1990).

²⁰ In "Television News, Real-World Cues and Changes in the Public Agenda," *Public Opinion Quarterly*, 49: 38-57 (Spring 1985), R. Behr and Shanto Iyengar did include public salience of several other issues in the analysis. But as the authors explicitly stated, this was purely for statistical control. No theoretical grounding was offered. Also omitted was media coverage on these competing issues.

We have revised the original expanded model, based on better theoretical grounding, into the following model:²¹

$$\Delta P = b \sum_{i=1}^k (M_{t-1} \times Q_{t-1,i}) - c \sum_{i=1}^k (N_{t-1,i} \times P_{t-1}).$$

This new model differs from the previous TSA model in three aspects: First, Q_t (current salience of competing issues) is replaced by Q_{t-1} (past salience of competing issues). While the former can be viewed as a mere statistical control, the latter represents a more substantive concept: the impact of coverage of an issue (M_{t-1}) on the audience concerned about competing issues (Q_{t-1}). Second, P_{t-1} appears in the right hand of the equation, which explicates the impact of coverage of competing issues (N_{t-1}) on the audience's salience of the main issue. Third, this equation has one parameter less and therefore is more parsimonious. It can be demonstrated that when there is one competing issue, there will be 3 parameters in the original expanded model, but only 2 here.

As the number of competing issues increases, the parsimonious merit of this equation becomes trivial. However, there is a substantive gain here. Recall that the original expanded model describes three effects: agenda-setting, issue-competition and attention-distraction. While agenda-setting, because of the coverage of the main issue, is clearly distinct from the other two, the line between issue-competition and attention-distraction is rather blurred. Conceptually, they represent the same process. This equation eliminates this arbitrary division and restates agenda-setting as a net balance of two opposite processes: recruitment ($M_{t-1} \times Q_{t-1}$ = coverage of the main issue that converts the competing audience), and defection ($N_{t-1} \times P_{t-1}$ = coverage of competing issues that attracts the main audience).

While substantively improved, this new equation presents more difficulties in estimation. As one can see, the equation has product terms, which means that it is a nonlinear model with respect to explanatory variables. As most nonlinear equations, it does not have an easy solution. To be sure, the model is just identified if we know the distribution of audience salience and news coverage on all competing issues, which is possible but not very practical. If we use 1 P_{t-1} and 1 M_{t-1} to substitute Q_{t-1} and N_{t-1} , respectively, then the model becomes overidentified (the mathematical demonstration is omitted here). A practical, but less precise, solution is to include as many issues as possible on the right side of the equation. The test reported below used that approach.

²¹ Its theoretical reasoning and mathematical derivation are omitted due to the space limit. A technical note is available upon request. It should be pointed out that this model converges to an "ideodynamic model" developed by David P. Fan, *Predictions of Public Opinion from the Mass Media: Computer Content Analysis and Mathematical Modeling* (New York: Greenwood, 1988), A. 17, p. 149, although they appear different and are developed within different theoretical contexts.

Data

The test examined three issues, the federal budget deficit, the Persian Gulf conflict and the economic recession. These issues were selected because they were the three most salient issues to the public at the time, as measured by the aggregate percentage of the public that identified these issues as "the most important problem facing the country" in national polls. Between June 1990 and April 1991, these three issues accounted, on the average, for 40% of the responses. The polls were conducted by Gallup, ABC/Washington Post, CBS/The New York Times, Yankelovich, Los Angeles Times, and Hart-Teeter. Sixteen polls with the relevant information were retrieved from an electronic database at the Roper Center of Public Opinion Research of the University of Connecticut. Linear interpolation was used to fill the missing points between polling dates. Later, the daily opinion series was aggregated into weekly series to match the media content series.²²

The media coverage of these issues was measured by counting the number of news reports that appeared on the front page of *The New York Times* and the evening newscast of ABC, CBS and NBC between June 1, 1990, and April 30, 1991.²³ The coverage of the three issues accounts for 30% of the total coverage. Content analysis was conducted by several trained coders. For quality control, the author also coded one month of *The New York Times*, and three months of the networks, which produced satisfactory intercoder reliability results.²⁴ Since *The New York Times* and the three networks covered these issues in a similar way,²⁵ the four media's stories were summed to form composite scores, each for one issue. The news stories were first counted on a daily basis and later were aggregated to weekly intervals, with a total of 48 weeks in the 10-month period.

Results

Table 1 reports the coefficients of the simultaneous regressions. Since the dependent variables are different between two time points, and explanatory variables are product terms, the interpretation of the coefficients is less straightforward than it would be in the case of a linear model. The coefficients can be understood best, therefore, in terms of media recruiting effects and media distracting effects. In fact, since these terms are just the reverse of each other,²⁶ we need to look at only one of the two. We choose recruitment coefficients, which are underlined in Table 1.

²² For more technical information, see Jian-Hua Zhu, "Media Agenda-Setting and Priming Effects in A Double-Crisis Period: A Time Series Analysis," presented at the Association for Education in Journalism and Mass Communication, Boston, August 1991.

²³ The content analysis of three networks was based on *Television News Index and Abstract* (1990-1991), compiled by Vanderbilt University.

²⁴ The Pearson's r is .97 for *The New York Times*, and .83 for the networks.

²⁵ The Cronbach's alpha between the four media is .96 for the budget deficit, .97 for the Gulf conflict and .74 for the recession.

²⁶ The small differences between some of the six pairs in Table 1 are purely due to computation.

TABLE 1
Unstandardized
Maximum
Likelihood
Estimation
Coefficients
(Standard
Errors in
Parentheses)

	Deficit	Gulf War	Recession
Deficit News	<u>.524*</u>	-.540**	na
x War Poll	(.122)	(.120)	
Deficit News	<u>-.103*</u>	na	.107*
x Recssn. Poll	(.043)		(.042)
War News	-.471**	<u>.474**</u>	na
x Deficit Poll	(.060)	(.060)	
War News	na	<u>-.110*</u>	.109*
x Recssn Poll		(.032)	(.032)
Recssn. News	-.045	na	<u>.045</u>
x Deficit Poll	(.029)		(.029)
Recssn. News	na	-.225	<u>.240</u>
x War Poll		(.181)	(.180)
Constant	<u>4.933***</u>	-.623	-4.349
	(1.021)	(1.390)	(1.475)
N. of Cases	48	48	48

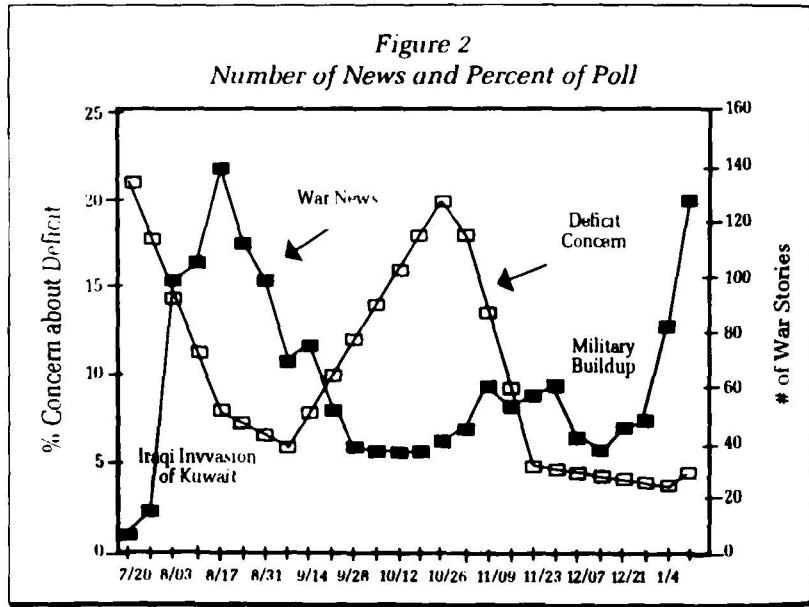
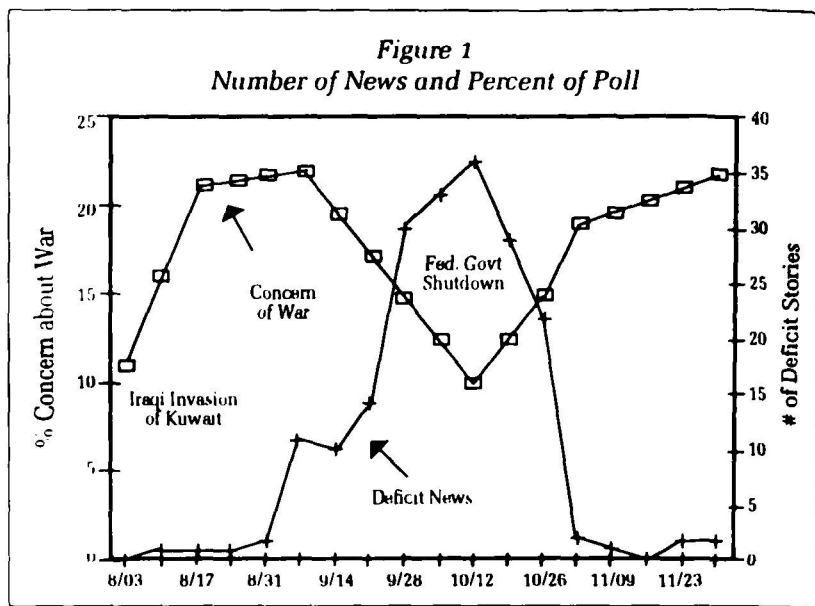
Note: the coefficients underlined indicate agenda-setting effects, and those not underlined indicate attention-distraction effects.

* p < .050;
** p < .001.

**Issue/
Competition**

If our theory as stipulated earlier is correct, then all these recruitment coefficients should be positive and statistically significant. As Table 1 indicates, not all results fall into our prediction. Specifically, three types of effects emerge: (1) significantly positive, (2) significantly negative, and (3) insignificantly positive. The first describes a mutually-taking competition between deficit and war, while the latter two describe a one-way attraction, in which one side gives while the other side takes. This relationship occurs both between recession and deficit, and between recession and war.

Two terms, Deficit News x War Poll in the deficit equation (line 1 of col. 1) and War News x Deficit Poll in the war equation (line 3 of col. 2) are significant and positive, as expected. The first term indicates that deficit news causes some of those formerly concerned about the war to become concerned about the deficit. The second term states the opposite, that war news makes some of those who initially worried about the deficit to become worried about the war. If both recruitments take place simultaneously, with similar strengths (as the case here, .53 vs. .47), then the two issues reach an equilibrium state in which there are in- and out-migration on each side while the overall balance between the two issues is maintained. However, a closer examination of the data shows that this is not the case here. The shifts between the two issues happened in different time periods (Figures 1 and 2).



As Figure 1 shows, the recruitment of deficit news on the war audience largely occurred around the episode of the federal government shutdown in October 1990. On the other hand, as Figure 2 shows, the recruitment of war news on the deficit audience took place twice: first, after the Iraqi invasion of Kuwait in August 1990, and then, when the U.S. led allies intensified the military buildup in the Gulf and the war became imminent. In both cases, the media agenda-setting on attracting audience from competing issues is confirmed. The rise of an issue (e.g.

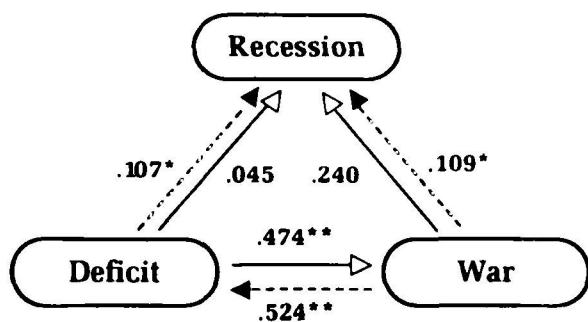
war) is certainly at the price of another (deficit).

The two significant negative terms, Deficit News x Recession Poll (Col. 1, line 3) and War News x Recession Poll (Col. 2, line 7), reflect another process: rather than reducing the concern about recession, news coverage of the deficit or the war actually increases that concern. Alternatively, we can say that deficit news or war news not only fails to recruit the recession audience, but also drives some of the deficit or war audience to become a recession-concerned audience. This could be explained readily by the fact that, when covering the deficit or the war, reporters often explicitly speculated on the negative impact on the economy.

While the deficit/war stories contribute some audience to the issue of recession, the recession news takes another portion of the audience away from the deficit issue or the war. Statistically, the two terms, Recession News x Deficit Poll (Col. 3, line 9) and Recession News x War Poll (Col. 3, line 11), are not significant. Still, we should not write them off completely because (1) they are in the predicted direction, (2) the value of one of them (Recession News x War Poll) is substantial,²⁷ and (3) they may be significant when combined with their rivals' contributions. Figure 3 summarizes the mutual competition process and the one-way attraction process.

One-Way Attraction

Figure 3
ML Regression Coefficients



* $p < .05$ ** $p < .001$

The idea of zero-sum is not our own innovation. The concept was embedded, as an unstated assumption, in the original agenda-setting studies. The contributions of this study are to: (1) explicate this assumption, (2) draw evidence from a variety of disciplines to illustrate that agenda-setting is a zero-sum process, (3) point out that TSA on a single-issue has departed from this principle, with undesirable consequences, and (4) propose and test a new model that solves the

Discussion and Summaries

²⁷ Its insignificance is apparently due to the large standard error, a result of rapid fluctuation in War Poll in the small sample.

dilemma between theoretical precision and methodological rigor in agenda-setting research. In particular, our model permits us to (1) examine multiple issues in one equation, as required by the zero-sum principle, (2) utilize TSA's power in causal inference, and (3) investigate idiosyncratic characteristics of specific issues. For example, in the empirical test, we not only obtained evidence for both agenda-setting and attention-distraction effects, but also found that recession is an issue not only immune from the competing coverage, but also one that benefited from such coverage.

It should be pointed out that zero-sum is a general rule, but with exceptions. Even in the biological world, there are other forms of relationships, such as no interaction and symbiosis.²⁸ These relationships have been observed elsewhere. For example, one study has found the news coverage between AIDS, cancer and sexually transmitted diseases is either independent (no-interaction) or mutually reinforcing (symbiosis).²⁹ The one-way attraction relationship, as found in this study, presents another form of the dynamics in agenda-setting. Nevertheless, the competitive relationship based on the zero-sum principle is still the predominant norm, as four out of our six relationships fall into this prediction.

Our investigation of the dynamic process of agenda-setting is still in progress. In future research, we need to address two weaknesses of this study. First, our model was tested with a pool of three issues that account for only 40% of the public's concerns at that time. If we exclude those who said "don't know" or "no opinion" in the surveys, our data represent about half of the population with actual opinions. The other half of the population was excluded. As stated above, we made an assumption that issue-competition and attention-distraction took place only among these three issues. Apparently, this is an unrealistic assumption. A test of this assumption would require us to collect information about other issues, which will be the next step of this line of inquiry.

Meanwhile, we need to test our model with individual-level data. Like many TSA studies, this study used aggregated audience data. Although our results suggest that the proposed model is plausible, there is still a danger of "ecological fallacy," that we claim a process which is supported by the aggregated data but does not exist at the individual level.³⁰ To put this question to rest, analysis of individual data is called for.

²⁸ Robert Huckfeldt, C. W. Kohfeld and Thomas Likens, *Dynamic Modeling: An Introduction* (Newbury Park, Calif.: Sage, 1982), p. 84.

²⁹ James K. Hertog, Emily Kahn and John R. Finnegan, "Media Coverage of AIDS, Cancer and Sexually Transmitted Diseases: A Test of the Public Arenas Model," paper presented to the annual conference of International Communication Association, Miami, Florida, May 1992.

³⁰ W. S. Robinson, "Ecological Correlations and the Behavior of Individuals," *American Sociological Review*, 15: 351-356 (1950).

Copyright of Journalism Quarterly is the property of Association for Education in Journalism & Mass Communication. The copyright in an individual article may be maintained by the author in certain cases. Content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.