



An analysis of the public discourse about urban sprawl in the United States: Monitoring concern about a major threat to forests

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Abstract

Urban sprawl has been identified as a serious threat to forests and other natural areas in the United States, and public concern about the impacts of sprawling development patterns has grown in recent years. The prominence of public concern about sprawl is germane to planners, managers, and policymakers involved in efforts to protect interface forests from urban encroachment because the level of concern will influence the acceptance of policies and programs aimed at protecting forests. A new indicator of public concern about urban sprawl is presented, based on computer content analysis of public discussion contained in the news media from 1995–2001. More than 36,000 news stories about sprawl were analyzed for expressions of concern. Overall concern about sprawl grew rapidly during the latter half of the 1990s. The environmental impacts of sprawl were the most salient concern overall, and concern about loss of open space and traffic problems has increased since 1995 as a share of all sprawl concerns. The method described in this paper provides a new approach for planners and policymakers to monitor change in public attitudes about a wide range of social issues over time.

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1. Introduction

Urban sprawl may be characterized as relatively low-density, noncontiguous, automobile dependent,

residential and nonresidential development that converts and consumes relatively large amounts of farmland and natural areas (Burchell et al., 1998). Concern about sprawl is not new—archaeological evidence suggests that cities of the ancient Mayans may have suffered from sprawl (Chase and Chase, 1994). However, the intensity and nature of concern about sprawl has evolved over time. In fact, sprawl is

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now considered a “bread and butter” policy issue, similar in importance to crime, education, and the economy (Pew Center for Civic Journalism, 2000).

Urban sprawl has been linked to an array of economic and social costs, including higher costs for provision of public infrastructure such as roads and utilities, more vehicle miles traveled and less cost-efficient transit, and a variety of negative quality of life and social impacts (Burchell et al., 1998). Additionally, the environmental costs of sprawl are becoming increasingly clear. Forest Service Chief Dale Bosworth (2003) has identified sprawling, land-consumptive development patterns as one of the four main threats to public and private forests in the United States. Of particular concern to forestry and other natural resource professionals, sprawl has been identified as the most significant factor affecting forest ecosystems in the southern United States (Wear and Greis, 2002). In North Carolina, for example, forest cover has declined by more than 1.0 million acres (about 5%) since 1990, with urban development as the predominant cause of the net loss (Brown, 2004). Further, sprawling development has been implicated as the leading cause of habitat loss and species endangerment in the mainland United States (Czech et al., 2000).

Public concern about the social and environmental impacts of sprawl has grown in recent years, as shown by a variety of indicators including surveys and polls, referenda and ballot measures, and the increase of both public and private growth management programs. Surveys are an important indicator of the public’s increasing concern about the social and environmental impacts of sprawl. A series of five surveys commissioned by the Pew Center for Civic Journalism (2000) indicated that the negative effects of sprawl and growth are now edging out more traditional issues, such as crime, in terms of overall impact on the quality of life in local communities. This was a significant increase from a 1994 Pew Center poll.

The growth in referenda and ballot measures also suggest a surge in concern about sprawl and interest in managing growth. For example, Myers (1999) found a more than 50% increase in the number of state and local referenda on smart growth, preservation of open space, and preservation of farmland and historic resources in the 1998 elections over 1996. Voters

approved 72% of the 240 state and local ballot measures related to growth management in 1998, among the highest rates of approval for capital measures put before voters. On Election Day 2000, there were 553 state and local referenda on growth management and related issues, and once again about 72% passed (Myers and Puentes, 2001).

Finally, growing interest in “smart growth” and other approaches to growth management in the United States (Chen, 2000; Weitz, 1999), the rising number of local, regional, and national land trusts, and increases in the acreage conserved in land trusts (Land Trust Alliance, 2001) also signal a shift in attitudes toward sprawl.

The prominence of concern about sprawl is germane to planners, managers, and policymakers involved in efforts to protect urban, rural, and interface forests and other natural resources from urban encroachment. The level of public concern will influence the social and political acceptance of policies and programs aimed at protecting forests, including state forest protection programs (Williams et al., 2004) and the United States Department of Agriculture (USDA) Forest Service Forest Legacy Program (USDA Forest Service, 2002). In the absence of data that highlight specific concerns about sprawl, planners will be hard pressed to develop politically acceptable management plans, and policymakers are unlikely to take action without an understanding of regional and demographic differences in concern, and how they have changed over time.

This paper describes a new indicator of concern about the impacts of sprawl that allows policymakers and planners to easily, efficiently, and continuously monitor temporal change in attitudes about sprawl, as well as regional and demographic variance. This social monitoring system is based on computer content analysis of the public discussion about sprawl contained in the news media. Sprawl has sparked an extensive public debate in the United States in recent years that is being carried out in a number of forums in society, including public meetings and hearings, legislatures, the courts, demonstrations and protests, and the news media. The media play a dual role in these debates, serving as a direct forum for public discourse on sprawl (through editorials, letters to the editor, etc.) and reporting on discussion occurring in all other forums. Social theorist Jurgen Habermas has

defined the term public sphere as a realm of social life in which citizens can come together as a rational body to debate issues of public concern, and in which public opinion is formed. Habermas states, “today newspapers and magazines, radio and television are the media of the public sphere” (Habermas, 1974, p. 49). Analysis of the content of the news media thus allows us to take the pulse of ongoing public debate about social issues such as sprawl, and to track change in the debate over time.

The role of the media in both shaping and reflecting public opinion on a wide range of social issues has been well documented (Fan, 1988; McCombs, 2004; Page et al., 1987), and analysis of the content of the news media has repeatedly been shown to produce results that parallel the findings of attitude surveys for many public policy issues (e.g., Fan, 1997; Fan and Cook, 2003; Gamson and Modigliani, 1989; Kepplinger and Roth, 1979; ParLOUR and Schatzow, 1978; Salwen, 1988; Shah et al., 2002). Further, related studies have found that the news media also strongly influence agenda-setting for public policy issues, i.e., there is a relationship between the relative emphasis given by the media to issues and the degree of salience these topics have for the general public or the political agenda. Dearing et al. (1996) and McCombs (2004) reviewed hundreds of published studies on media agenda-setting, the vast majority of which support the agenda-setting hypothesis. Therefore, analysis of the public debate about urban sprawl contained in the news media is not mere “media analysis”—it is a window into the broader social debate and a means to gauge, indirectly, public attitudes and concerns about sprawl.

The hypothesis guiding this analysis is that concern about urban sprawl—as measured by our indicator of expressions of concern in the news media discussion—would be expected to increase during the booming economy of the late 1990s. Some observers have hypothesized that sprawl is principally a quality of life issue that waxes and wanes with the economy. Gillham states “Some evidence exists that sprawl is mostly a quality of life issue for the majority of the voting public and, as such, that it is only prominent on the national radar screen during good economic times,” (Gillham, 2002, p. 80). The idea is that most people will be less concerned about managing growth and more con-

cerned about their jobs and financial security in economic bad times. In addition, it is during periods of sustained economic growth that most new construction occurs and open space is lost at an accelerated pace, causing greater concern. Our approach sheds light on this hypothesis because it is able to monitor changes in the nature and level of concern temporally, regionally, and demographically.

The next section describes the computer content analysis methodology and data used in this study. The sections that follow describe the main concerns we identified and how they vary spatially and regionally. We conclude with a discussion of the policy implications of these findings, future lines of investigation, and the relevance of this approach in the planning and policy arenas.

2. Methodology and data

The methodology for this analysis involved the following steps: (1) downloading news stories about urban and suburban sprawl from an online commercial database, (2) “filtering” the downloaded text to eliminate irrelevant stories and paragraphs, (3) identifying the main concerns about sprawl expressed in the database of news stories, (4) developing an algorithm to score paragraphs in the database for concerns about sprawl, and (5) assessing the accuracy of the computer coding. Each step is briefly described below.

2.1. Identifying and downloading news stories

We searched the LexisNexis™ commercial online database for stories about sprawl in 111 news sources in the United States over the period January 1, 1995–March 31, 2001. LexisNexis was used because its news library is the largest such database available and it extends further back in time than similar databases. The 111 news sources—selected because they were continuously available online over the entire time period—included 94 local newspapers, five national newspapers, six national and regional newswires, and six television and radio news transcripts.

The following search command was used to identify stories about sprawl: (sprawl! w/p (urban!

or suburb!)), where w/p means “within the same paragraph” and the exclamation point means that all trailing letters are permitted. This search turned up 36,787 stories, all of which were downloaded. Only text that was within 100 words of the search terms was downloaded. This greatly reduced the amount of irrelevant text that would have been retrieved from stories that mentioned sprawl only in passing.

2.2. Filtering text

We then examined a random sample of about 500 of the downloaded stories to assess the relevance of the text and eliminate any stories and paragraphs that were not about the intended subject. Almost all of the stories were about urban sprawl. Examples of irrelevant stories included an article in which the phrase “urbane sprawl” was used to describe a contemporary Spanish design residence and an article titled “Suburban Sprawl” which was an automotive review of the Chevrolet Suburban. Irrelevant stories such as these were filtered out of the text database using the InfoTrend™ software (Fan, 1997) as described in Step 4 (below). The InfoTrend software can discard paragraphs that do not fit with user-specified criteria. An algorithm was developed to remove stories and paragraphs not discussing urban sprawl.¹ After removing the irrelevant text, the final database included 36,344 stories.

2.3. Identifying concerns about urban sprawl

The remaining news stories were then examined to identify the most frequently expressed concerns about urban sprawl. Categories of concerns were not predetermined, but emerged from analysis of the textual data. Given the large volume of text, we did not examine each story in the database. A random sample of about 500 stories was examined to identify specific concerns about sprawl. The specific concerns are described in the Findings and Discussion section. These concerns are the concepts that were coded for in this analysis, as described in the following step.

¹ For example, all articles mentioning the word “Chevrolet” were deleted from the database.

2.4. Scoring paragraphs

The unit of analysis in this study was individual paragraphs. An algorithm was developed to code the filtered text for the number of paragraphs expressing each of the specific concerns about urban sprawl. If a paragraph contained more than one expression of the same sprawl concern, it was counted as only one expression of the particular concern. If a paragraph contained expressions of several different sprawl concerns, however, each of the concerns was counted once.

As with the filtering of text (Step 2), scoring was done with the InfoTrend software using the Filtscor computer language. The Filtscor language has two components, each of which is custom designed for a particular analysis. The first component is a *dictionary* comprised of key words and phrases that are associated with the concept of interest. The second component is a series of *idea transition rules* that specify how pairs of words and phrases in the dictionary are combined to give new meanings.

To illustrate the method, consider the following excerpt from our database of stories: “As suburbs replace farms, forests and marshlands with houses, yards and roads, they destroy the existing ecosystems and leave a trail of blacktop and pollution” (Milwaukee Journal Sentinel, 1998, p. 15). The paragraph from which this was excerpted was scored as an expression of concern about the environmental impacts of sprawl. In this sentence, the words “forests” and “marshlands” were among the words and phrases in our dictionary that connote components of the *environment* (e.g., air, back country, biodiversity, etc.); the words “destroy” and “pollution” were among the words and phrases that connote the idea *damage* (e.g., decimate, degrade, despoil, etc.); and the word “suburbs” was among the words and phrases that connote *sprawl* (e.g., exurban sprawl, sprawling development, urban sprawl, etc.). An idea transition rule was written specifying that a *damage* word in close proximity to (i.e., within 50 characters of) an *environment* word—and in the same paragraph as a *sprawl* word—would be counted as an expression of concern about the environmental impacts of sprawl. Similar word groups and idea transition rules were developed to identify and count expressions of each of the specific concerns about sprawl that had been

identified (Step 3). Several word groups and sets of idea transition rules were typically needed to accurately and comprehensively capture each sprawl concern.

Developing the dictionary and idea transition rules to capture expressions of concern about sprawl was an iterative process. In the development stage of the analysis, coding decisions made by the still-evolving computer instructions are examined and the analyst modifies the dictionary and rules until computer coding of the text agrees with the analyst's interpretation.

2.5. Checking accuracy

With traditional human-coded content analysis, intercoder reliability is often a problem due to ambiguous coding instructions, cognitive differences among the coders, or random recording errors (Weber, 1990). With the computer-coded approach used in this study, however, the computer always applies the coding rules consistently and therefore intercoder reliability is not an issue. But it is important to ensure that the computer instructions accurately code the concepts of interest. We examined a random sample of 500 stories that were coded using our computer instructions to determine whether they were able to accurately identify expressions of each of the individual concerns about sprawl. After final refinements, the accuracy rates for the specific sprawl concerns ranged from 85% to 96%, and the overall accuracy rate for all nine concerns was 92%. Krippendorff (1980) suggests a minimum acceptable reliability of 80% as a rule of thumb in content analysis.

3. Findings and discussion

The public debate about sprawl has been lively and dynamic in recent years. News media accounts express a diversity of concerns about sprawl put forth by a wide range of stakeholders, and sprawl is clearly framed as a significant social and environmental problem. Sprawling patterns of development also has supporters, whose arguments are often based on private property rights and consumer sovereignty: Consumers know what they want and should be free to exercise their choice in the marketplace. But the

public discussion of sprawl is largely opposed to it (Gillham, 2002), and we found this to be true of the debate contained in the news media. Therefore, in this analysis, we have focused on negative perceptions of sprawl.

3.1. Nine concerns about sprawl

Among the various environmental and social expressions of concern about sprawl, the following nine concerns emerged most frequently in the news media stories we analyzed. These nine concerns are the concepts that were coded for and counted in this analysis. Each concern is followed by an example of text from our database expressing the particular concern:

1. Unspecified Concern is the view that sprawl is a problem, is undesirable and should be avoided or stopped.

As policy director, Rowen focused on issues that made up Norquist's agenda, "primarily transportation, land use and fighting urban sprawl." (Nichols, 1998, p. A3).

2. Environmental Impacts is the concern that sprawl causes a wide range of environmental damage, such as loss of wildlife habitat, forest fragmentation, decreased air and water quality, loss of biodiversity, etc.

The painful concept of urban sprawl has become increasingly poignant as we witness the despoiling of countless acres of local forest in the name of "progress and prosperity." (Indianapolis Star, 2000, p. D4).

3. Loss of Farmland is the concern that sprawl is responsible for the loss of farmland or is a threat to farmland. This concern also encompasses the loss of rural character and way of life in rural areas that are being developed.

The dilemma is a common one facing farmers in northern Illinois, where urban sprawl is gobbling up choice farmland at an unsustainable rate and encroaching on the agricultural way of life for those who remain. (Parisi, 1998, p. B5).

4. Loss of Open Space is the view that sprawl is responsible for the conversion of open space to developed uses, or is a threat to open space. This concern may be related to *loss of farmland*, but was coded separately because it was often expressed as a distinct concern. For the purposes of this study, open space is broadly defined to include all types of undeveloped land, such as fields, forests, farmland, parks, wetlands, and so on.

I've lived the uncontrolled city planning (urban sprawl) and have seen acres of open land paved over. I've seen multiple cities become a blur because their city limits butt up against each other. And I've seen the friendliness of the people turn into a bare tolerance of others because everyone is elbow to elbow. (*Des Moines Register*, 1997, p. 7).

5. Traffic Problems is the concern that sprawl contributes to traffic congestion, longer commutes, road rage and other traffic problems.

Sprawl has resulted in lengthier commutes, worsening traffic congestion and air pollution, he said. (*Ibata*, 2000, p. 9D).

6. Urban Decline is the view that sprawl contributes to the decline of core cities as public and private financial resources are dedicated to growth at the periphery instead of redevelopment and revitalization of urban centers.

The note of caution reported from the consultants that such improvements “might contribute to urban sprawl” and “might counter redevelopment efforts in the urban core” are brushed aside. Experience in city after city has shown, without any doubt, that these undesirable effects will in fact occur. . . . The urban core is a wasteland of vacant lots, abandoned buildings and surface parking lots. (*Kansas City Star*, 2000, p. B6).

7. Taxpayer Subsidy is the view that sprawl does not pay its own way, is subsidized by taxpayers, and entails hidden costs. Sprawl subsidies include the cost of providing roads, municipal water and sewer services; hidden costs include increased demand for schools, longer response times for police, fire and ambulance services, etc.

The Clinton administration's recent anti-sprawl initiatives are promising. Increased funding to preserve undeveloped land, to build parks in urban areas and to improve air quality are a good start, but they still don't address the fundamental cause of urban sprawl: the provision of a high quality of life at subsidized prices. (*Barrett*, 1999, p. 3).

8. Loss of Community is the concern that sprawl destroys sense of community and sense of place, and fosters social isolation.

Polet believes neighborhood butcher shops are disappearing because of urban sprawl and zoning which discourage mixing small shops and homes in a neighborhood. . . . “They really need to re-evaluate their restrictions because there's no sense of community anymore.” (*Seelig*, 1998, p. F1).

9. Loss of Historic Sites is the view that sprawl threatens historic and culturally significant sites such as historic buildings, historic downtown areas, historic districts, prehistoric sites, etc.

It is not that change is bad, per se, but rather that Madison is experiencing so much change so very rapidly—in the form of population growth, new residential and commercial development and suburban sprawl—that some controls must be administered in order to preserve not just the past but the present. That is why any move that significantly weakens protections for historic structures must be seen as a wrongheaded assault on Madison's character. (*Capital Times*, 1997, p. 10A).

These nine concerns about sprawl are the most commonly expressed in the public debate contained in the news media. They are sometimes listed in a single sentence or paragraph, such as the following sentence which expresses six of the concerns: “The conference hopes to address the problems of suburban sprawl, including loss of farmland and open space, increased traffic, the decline of urban centers and increased property taxes.” (*Blangger*, 2000, p. D1).

In addition to these common concerns, a variety of additional, infrequently mentioned concerns about sprawl were also expressed. For example, there has been some news media discussion of the impacts of automobile-dependent suburban development that

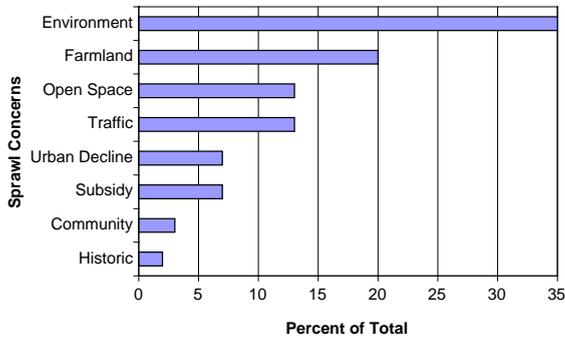


Fig. 1. Specific concerns about sprawl as a percent of total expressions of concern, first quarter of 1995 through the first quarter of 2001.

contributes to sedentary living habits on human health. But to date this concern has been a small part of the overall discussion. Other examples of infrequently expressed concerns include increased incidence of rabies, rattlesnake bites, and other adverse human–wildlife encounters in some parts of the country that have been blamed in part on subdivisions pushing farther out into wildlife habitat, and the concern that sprawl complicates wildland fire management.

3.2. Ranking concerns about sprawl

The debate about sprawl in the United States has been dominated by expressions of concern regarding *environmental impacts* (Fig. 1). Of the eight specific concerns (that is, excluding *unspecified concern*), the view that sprawl is responsible for a variety of undesirable *environmental impacts* was expressed most frequently, accounting for 35% of all specific concerns over the entire time period. The other specific concerns, in order of their frequency of expression, were as follows: *Loss of farmland*, *loss of open space*, *traffic problems*, *urban decline*, *taxpayer subsidy*, *loss of community*, and *loss of historic sites*.

3.3. Trends in concern about sprawl

In addition to identifying and ranking the most frequently expressed concerns about sprawl, we monitored trends in total expressions of concern over time based on the number of paragraphs per quarter

that contained any of the nine most frequently expressed concerns about sprawl (Fig. 2). Since the number of paragraphs per quarter was derived from a constant set of news sources over the entire period, the increase in expressions of concern over time was not due to additional news sources becoming available online. Expressions of sprawl concern have grown from just over 800 paragraphs per quarter in 1995 and early 1996 to a peak of more than 3200 in the first quarter of 1999. This peak in expressions of concern was due in part to then Vice President Al Gore's championing a "livability agenda" and smart growth concepts. Gore launched the livable communities initiative on January 11, 1999 in a speech to the American Institute of Architects. A White House Task Force on Livable Communities was created in August 1999 to coordinate livable community policies across 18 executive branch agencies (Livable Communities, 2000). Gore's strong support and frequent public discussion of smart growth and related concepts in late 1998 and 1999 appear to have intensified the national debate on sprawl. At the local level, however, the core of the debate about sprawl and the main factor driving increased expressions of concern in the local news media discussion is the emotional impact people experience when they lose places in their own communities they feel deeply attached to.

Since the end of 1999, total expressions of concern have declined somewhat, but still remain at more than twice the volume of just 6 years earlier. Fig. 2 also shows the number of expressions of *unspecified concern*, the most frequently expressed of the nine concerns. *Unspecified concern* accounted for more

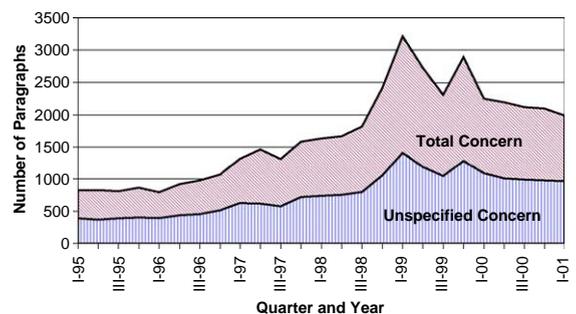


Fig. 2. Trends in total expressions of concern about sprawl and unspecified concern, first quarter of 1995 through the first quarter of 2001.

than 45% of all expressions of concern nationally over the entire time period.

The prevalence of environmental concern is consistent with the shift in environmental attitudes and values in the U.S. that has been observed by social scientists. As undeveloped natural areas have become increasingly scarce, the ecological, ethical and aesthetic values associated with the environment have become more important (e.g., Dunlap et al., 2000; Kempton et al., 1995). Polling data indicate that concern about environmental health and quality has been transformed from an issue of limited concern in the late 1960s and early 1970s to a “settled issue” of near-universal concern by the 1990s: “Large majorities of Americans across all classes and social groups are deeply committed to a safe and healthful environment” (Ladd and Bowman, 1996, p. 5). The public debate about sprawl reflects this shift in environmental values.

Although environmental concerns are most prominent, other sprawl concerns (Fig. 1) are also important components of the public debate. In particular, concern about *loss of farmland* has long been significant, particularly in smaller metropolitan areas in predominantly rural states. For example, farmland was number one on a list of the “Top ten things adversely affected by urban sprawl” compiled by 1000 Friends of Iowa.² A recent literature synthesis found consensus about the link between sprawl and loss of agricultural land (Burchell et al., 1998). This synthesis also found general agreement—albeit based on scant literature—of reduced regional open space in sprawl-dominated areas. Growing concern about traffic problems is indicated by a survey conducted in 2000 for Smart Growth America, which found that 54% of Americans believe traffic has gotten worse over the previous 3 years in the area in which they live (Belden, Russonello and Stewart, Inc., 2000). Concern about urban decline has been an important part of the debate about sprawl in certain large cities, although Downs (1999) found no statistically significant relationship between sprawl and urban decline.

² 1000 Friends of Iowa is a nonprofit educational and advocacy organization that focuses on land use issues (www.kfoi.org/kfoi_top10ten.html).

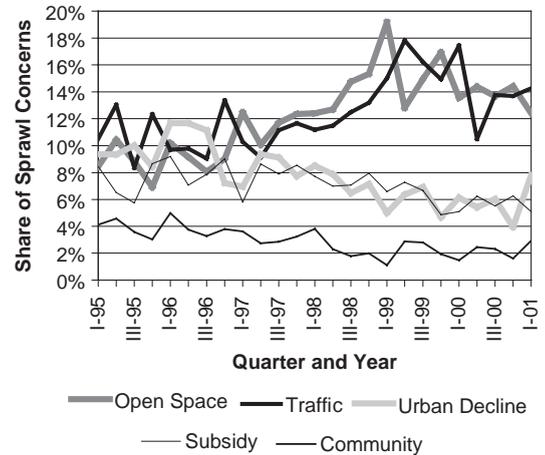


Fig. 3. Trends in the shares of selected sprawl concerns, first quarter of 1995 through the first quarter of 2001.

3.4. Temporal variation in concern about sprawl

We also analyzed shifts in the discussion about sprawl over time, i.e., changes in the relative emphasis of concerns. Three of the eight specific concerns about sprawl did not exhibit any trends over time: *Environmental impacts*, *loss of farmland*, and *loss of historic sites*. Although the volume of expressions of each of these concerns increased substantially over time, they remained about constant as a share of total expressions of concern.³ Five specific concerns about sprawl changed significantly (P -values < .001) over time (Fig. 3). Concern about *loss of open space* and *traffic problems* both increased as a share of total concern, signaling a slight shift in the national debate toward these quality of life issues. During 1995–96, *loss of open space* consisted of 9% of all expressions of concern, but by 1999–2000 it accounted for 15%. Concern regarding *traffic problems* rose from almost 11% in 1995–96 to 15% in 1999–2000.

Urban decline, *taxpayer subsidy*, and *loss of community* declined as a percent of total expressions of concern about sprawl (Fig. 3). Concern about *urban decline* decreased the most, falling from 10% of all expressions of concern in 1995–96 to 5.5% in 1999–2000. This may be due to the rapid economic growth of the late 1990s, in which urban economies fared comparatively well. Many large U.S. cities

³ The slopes of regression lines of the shares of these three concerns were not significantly different than zero.

experienced signs of renewal during this period, such as increased homeownership and decreased violent crime, unemployment, and poverty.

3.5. Regional variability in concern about sprawl

A key element of our methodology that planners and policymakers should find particularly useful is the

ability to focus on specific geographic areas that may be of interest. For example, we identified differences in concern about sprawl between regions of the country and between individual metropolitan areas (Fig. 4). We evaluated concern about sprawl in four metropolitan areas in the North Central region of the United States: Chicago, IL, St. Louis, MO, Des Moines, IA, and Madison, WI. An upswing in

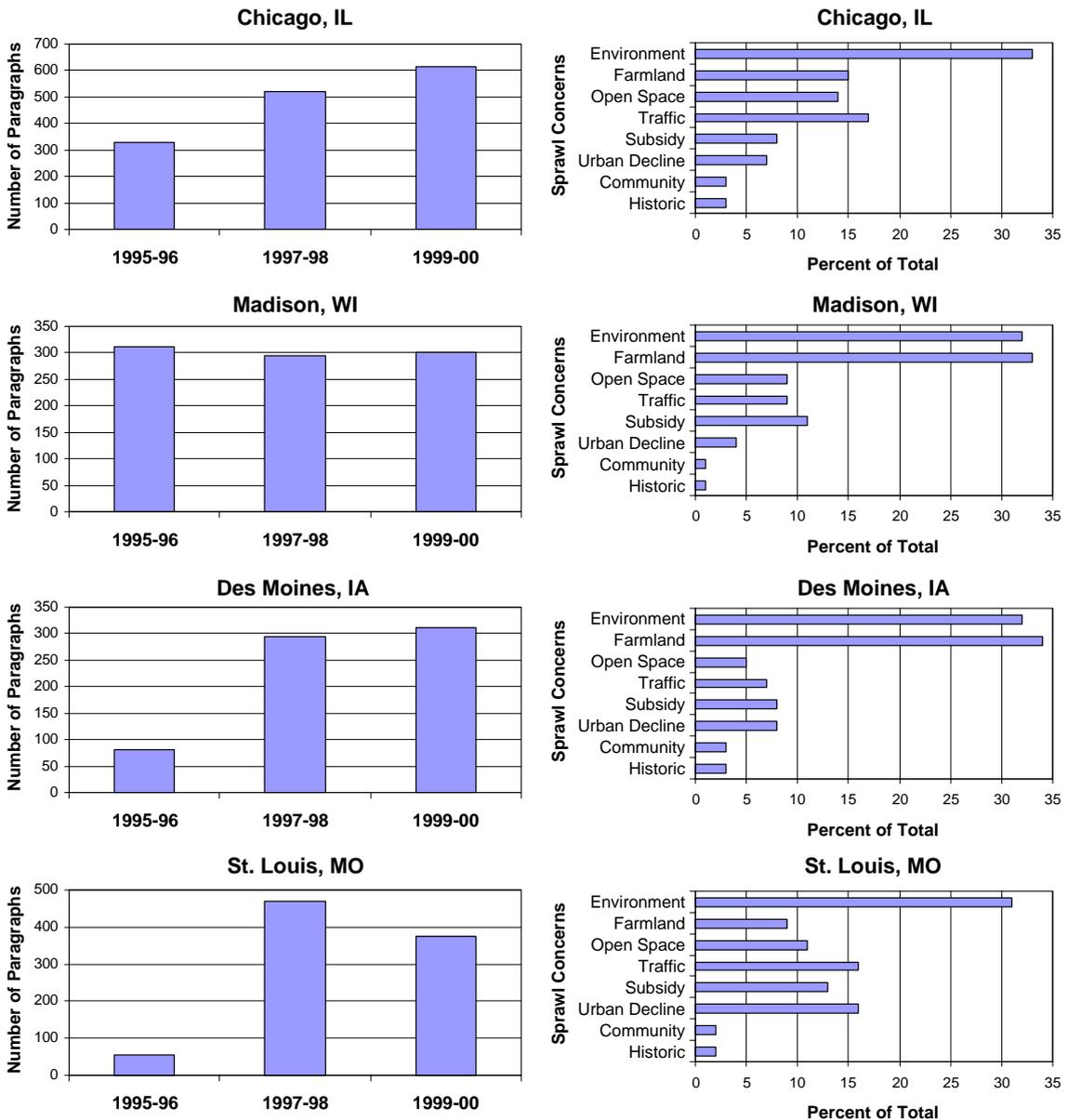


Fig. 4. Concern about sprawl in four metropolitan areas of the North Central region of the United States.

expressions of concern about sprawl is apparent for most metropolitan areas over the 6 year time period. An exception is Madison, Wisconsin, which has had a consistently high level of concern over the entire time period. These figures can be compared to the aggregate national findings (Fig. 2).

The consistently high level of concern about sprawl in Madison may be due to a variety of factors, including: (1) Madison is the only place in the U.S. where a major city is built on an isthmus between two large lakes, and therefore residents may be more sensitive to the land use issues and limitations of available living space; (2) experts at the University of Wisconsin-Madison have frequently been involved in local land use planning, such as a “We the People” civic involvement project that focused on land use in the mid-1990s and included several media partners; (3) in 1994, Gov. Thompson created a Strategic Growth Task Force and a state inter-agency council that produced a widely publicized report on sprawl; and (4) in late 1995, 1000 Friends of Wisconsin was founded in Madison and, although the group has members in every Wisconsin county, the core of its 2500 members reside in or near Madison (Personal communication, Prof. Don Last, former President of 1000 Friends of Wisconsin, June 25, 2002).

The relative importance of individual concerns is similar in most metropolitan areas. For example, concerns about the *environmental impacts* of sprawl are most frequently expressed in most cities. But concern about *loss of farmland* has dominated the public discussion in Madison, Des Moines, and other smaller cities in heavily agricultural states. Concern about *traffic problems* related to sprawl was more prominent in Chicago, second only to expressions of *environmental impacts*. The share of expressions of concern about *urban decline* was unusually high in St. Louis and other cities grappling with problems in the urban core. Focusing on individual metropolitan areas enables state and regional policymakers and planners to identify the most salient concerns in a particular location and track changes in local concern over time.

4. Conclusions and implications

Although the process of suburbanization in the United States dates from the early years of the

nineteenth century, widespread apprehension about the impacts of sprawling development patterns did not emerge until the rapid increase in suburban growth during the 1950s and 60s (Jackson, 1985). In recent years, urban sprawl has sparked an extensive public debate in the United States that will shape land-use policy for years to come. This debate is captured in the news media discussion of sprawl. Our findings suggest that overall concern about sprawl grew rapidly during the latter half of the 1990s. This confirms Gillham’s (2002, p. xiv) suggestion of a “gathering storm” of concern about the effects of urban sprawl. The increase in concern found in our analysis corresponds with various indicators of changing attitudes toward sprawl mentioned earlier, such as public opinion polls in which sprawl is identified as one of the top concerns among residents of local communities and the steady growth of ballot box initiatives related to growth management in the late 1990s. After reaching a peak in the first quarter of 1999, concern about sprawl reflected in news media discussion declined somewhat but still remained at a much higher level than just a few years earlier. The relatively high level of concern suggests that sprawl is indeed back on the public agenda (Leo et al., 1998) and that it may be an opportune time for planners and policymakers to make progress in developing more effective programs to manage growth and protect forests and other natural areas from urban encroachment.⁴

An awareness of the relative importance of specific concerns about sprawl can provide planners and policymakers with guidance in designing and marketing programs to address particular problems associated with sprawling development in a given location. For example, concern about *environmental impacts* was the most salient nationwide (Fig. 1), but concern about *loss of farmland* was more important in certain metropolitan areas (Fig. 4). Concern about *urban decline* was a small part of the overall national debate, but was the second most frequently discussed concern (tied with *traffic problems*) in St. Louis (Fig. 4). Different approaches to growth management policies and programs—and in generating public support for

⁴ Porter (1997) and Bengston et al. (2004) discuss lessons learned from evaluations of growth management policies and programs, and how they can be made more effective.

these efforts—are required in cities with different sets of problems and concerns.

Understanding the evolution of concerns about sprawl over time is also important in designing effective response strategies. The national debate about sprawl has shifted since 1995: The relative importance of concern about *loss of open space* and *traffic problems* has increased, and expressions of concern about *urban decline*, *taxpayer subsidy*, and *loss of community* have decreased as a share of total concerns (Fig. 3). The debate will likely continue to shift in the future. An awareness of the dynamics of the public debate about sprawl can help policymakers develop more socially acceptable strategies for managing growth that are consistent with the changing social landscape.

The expectation guiding this study was that concern about sprawl would increase during the economic boom of the late 1990s. Our findings tend to support the hypothesis that sprawl concern is linked to the health of the economy. Expressions of concern about sprawl increased dramatically during this time period. The longest economic boom in U.S. history ended in early 2000 after 107 months of expansion. The decline in expressions of concern after 1999 corresponds with a decline in various indicators of economic health, although economic indicators dropped more precipitously than expressions of sprawl concern. A rigorous test of the hypothesis that concern about sprawl is cyclical could be carried out by updating this analysis after the economy has fully recovered and econometrically testing the relationship between sprawl concern and various indicators of economic health.

Analysis of the ongoing public debate about issues such as sprawl using computer content analysis of online news media text is a new way to monitor the social environment. This methodology can be used to construct social indicators for sprawl—and many other issues—that complement indicators based on census data, surveys, focus groups and other traditional approaches. Analyzing social debates using computer content analysis of online text does have some important advantages over traditional social science methods. Our approach can be extended back in time in order to establish trends for the concepts of interest, updated easily and efficiently, and expanded to include additional issues

and concepts of interest, or to analyze key trends in greater depth. The method described in this paper provides a new approach for the continuous monitoring and assessment of a broad range of trends in the social environment.

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