Committee Size and Smart Growth: An Optimal Solution

By

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Abstract

A critical challenge of Wisconsin's Smart Growth Initiative is to include the public in the creation and development of the instrument. One implication of public participation is the strategic development of a comprehensive planning committee. Two crucial decisions occur when the committee is formed: the size of the committee and the composition of the committee. This paper models a relation between committee size and the accuracy of policy. It also models the relationship between the inclusion of experts, whether paid consultants or paid planners, on the accuracy of the outcome. Based on a survey of 144 committee members, we test the relationship between the participants' observations of quality and group size and composition. This paper looks at the tradeoff between the delay of reaching a group decision with the additional accuracy offered by the large, diverse committee.

Introduction

A critical challenge of Wisconsin's Smart Growth Initiative is to include the public in the creation and development of a community's comprehensive plan. This paper focuses on the structural complications of that process. The challenge wrestles with conflicts between paid professionals and citizen volunteers. It tests relationships between passionate citizens, elected officials, and appointed committee members. It requires design choices developed within an inclusive environment of large committees but not so large as to inhibit decision making.

The Wisconsin model offers a wide variety of methods from which to develop a plan. The size of planning committees varies widely. The groups are comprised of

citizen volunteers, consultants, paid staff, elected officials, or a mix of all of these. This body can be the local plan commission or an advisory committee created by the governing body. Within this framework, the initial structure must specify the roles of the various participants in both the preparation and approval of the comprehensive plan.

The oversight committee or group charged with the development of the comprehensive plan is often selected in an attempt to satisfy and include community stakeholders. However, the complex nature of zoning and planning requires the inclusion of both staff and consultants. The addition of members to the committee often serves to bring talent to the deliberations, while at the same time disrupting the efficiency of a smaller group. The beliefs regarding the benefits of stakeholder representation align with academic insight into group size: there exists a framework that contends that committee size should incorporate diversity and input that can result in a more representative result. In light of these issues, we analyze a mechanism design problem involving the creation of the smart growth committee. This question focuses on number of members and the impact of professional planners on the end product.

Literature Review

The agency effect of public participation creates an environment in which committees are accountable to the public they serve. Thus the agency effect is that people do things for purely personal reasons that do not necessarily serve the public interest. Comprehensive plans developed by consultants and implemented by paid planners run the risk of serving the interests of their authors. Public participation, while

creating an additional avenue of potential for agency effect, broadens the available interests that offer ideas and input.

Public participation enables citizens to shape planning decisions and outcomes while increasing their sense of social and political empowerment (Laurian, 2004). Crucial to the argument of public participation is the development of accountability and democracy within the process (Healey, 1992). One natural perk of public participation is the inclusion of lay knowledge (Forester, 1999) and community awareness. This knowledge and visibility improves public support for policies (Bickerstaff and Walker, 2001). Evolving out of this premise is the fundamental question regarding the makeup and size of these committees.

Earlier planning literature focuses on the content of the comprehensive plans (Berke and Conroy, 2000) or the idea of public participation is a question of how and why they participate (Laurian, 2004). This paper focuses rather on the outcome of participation by bureaucrats, citizens, and elected officials, paid or unpaid, and how it may lead to plan success. The original premise of this paper evolves from an article on the design of small decision making groups and the probability of accurate outcomes (www.intuitor.com, 1996). The authors argue that larger does not result in more accurate results. For example, a firm may find that offering a wider variety of products does not ensure success. It rather offers more opportunities for failure at the individual level. The paper also argues that larger groups create a problem in managing communications.

This paper seeks to estimate policy success by modeling the relationship between committee size and plan accuracy. The idea of large committees is supported by intuitive ideas. Large committees provide an opportunity for each member to learn from each

other and pool the judgment of different individuals (Lombadelli, Proudman, and Talbot, 2002). This idea, combined with the Condorcet Jury Theorem[1] suggests that committees should be very large. Persico (1999) contends that the standard model is based on the idea that if each committee member contributes private information, increasing the number of committee members helps the decision making process.

However, Persico continues that with larger committees evolves a less engaged committee member, prone to free riding on the others efforts. Also, each additional member feels less responsible for the ultimate decision. As a result, it can be argued that small committees may be more accurate.

Employing the rule of large numbers, it can be observed that, if high-quality members are scarce, adding members to a high quality small committee will simply lower the average quality of the membership. This could be more problematic in smaller communities, especially if the more qualified members are the first selected. In voting schemes requiring majority rule, the addition of lower quality members, combined with the possibility of free riding, creates a scenario worth examining.

The contribution of this paper is to look at these issues in an applied fashion. According to the argument and the models, the development of committees creates two hurdles. The first is the increased likelihood that a large committee will confront a sensible and positive solution. However, due to the noise created through the multiple answers developed in a large format, this solution may be drowned out by the noise. As a result, this paper looks at recent policy and the corresponding committee size.

Data and Methodology

The data for this model initiated with a list provided by the Wisconsin Department of Administration of all communities who had filed comprehensive plans with the state of Wisconsin between the years 2002 and 2004. This ensured that the communities surveyed had seasoned their plans with actual service to the community. A one-page survey and explanatory letter was sent to 489 citizens who had participated in the completed plans.

The survey itself was divided into five sections. The first was respondent's basic demographic information, most importantly how many years they had served as a community planner or as an elected official. The theory being that elected officials and bureaucrats have different levels of accountability to the citizens they represent. The second question identified demographic characteristics for their community. The third question focused on issues of committee design and decision making style, including a split between volunteers, elected members, and bureaucrats. The fourth question probed the plan authorship and funding. The final question was to find out how they perceived the plan to be working.

The fifth question has three parts. The initial part asked if the plan is referred to when decisions are currently being made. The assumption here is that, as a living document, the plan is integral to current decision making. Secondly, we asked how often exceptions are made to the plan. Finally, committee members were asked how long before the plan is expected to need revision. If exceptions are regularly being made or the community is already considering revision, the plan itself was not perceived to be of high quality. This analysis assigned points to these measures of quality[2]. This provided a

quality measure based on all three questions ranging in value from a low of 3 to a high of 30. Relevant statistics are included in the table 1 below:

Table 1: Relevant statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Description
Age	144	57.92	10.98	30	85	Age of respondent
years as cp	139	11.16	9.59	0	43	Years served as a community planner
years as eo	133	4.80	6.94	0	30	Years served as an elected official
Commsize	118	8.59	3.65	4	24	Committee Size
Pct Bureaucrats	100	28.37	37.65	0	100	Percent of Committee that are paid but not elected
Quality metric	126	18.26	4.87	3	30	The sum of point values earned by the quality questions (see footnote)

Surveys were mailed on Marquette University letterhead by the Department of Administration and returned to UW Whitewater. Of the 489 surveys mailed 152 were returned. This provided a 31% return rate where no incentive was given to the respondents. Data was compiled and analyzed in Stata. Unfortunately of those respondents only 82 answered the survey completely. Three of those had unrealistic responses for committee size (i.e. greater than 90 members) and were omitted. The remaining respondents represented a wide variety of communities: 45 planners from cities, 64 from townships, and 35 from villages. 57% of respondents stated that their decision making rule was majority rule rather than consensus.

Results

Econometric theory suggests that the optimal number of a variable is produced by incorporating the variable and its square into the model. The theory continues that once regressed, the first derivative should be calculated and set equal to zero. The OLS econometric model was as follows:

> *Quality Metric = f(Committee size, committee size squared, years as community planner, years as elected official, population and governance dummies, and % of paid, unelected individuals on the planning commission)*

The model was run twice: first without any without any weighting for potential distortions from disproportionate responses from committees with large sizes and second accounting for that through analytical weights.

Table 2: Regression estimates of Quality Metric

Independent Variable	Unweighted	Weighted
Committee Size	1.78*** (0.66)	1.16* (0.65)
Committee Size Squared	-0.081*** (0.03)	-0.047* (0.024)
Years as a Community Planner	-0.06 (0.06)	-0.084 (0.057)
Years as an Elected Official	0.15* (0.08)	0.11 (0.092)
Population Indicator	-3.17* (1.70)	-1.40 (2.77)
City or Town Indicator	.94 (1.32)	1.98* (1.18)
Percentage of Commission Paid but not elected	.05*** (0.01)	0.049*** (0.016)
Constant	9.99*** (3.45)	10.094* (3.79)
Adjusted-R squared	0.2406	0.2429
F-stat	3.75***	4.58***
Notes: * indicates significance at 10% level *** indicates significance at the 1% level		

In a maximization regression one key requirement falls on the signs of the coefficient for the variable in question and its square. It is important that committee size is both significant and positive while its square is significant and negative. In both versions of the model we have achieved this requirement. Using the coefficients for committee size and the square of the first derivative of quality with respect to committee size provides the optimal number of committee members. Average values for all variables other than committee size and its square generate a quadratic equation in terms of the committee size variables, allowing for the maximization via differentiation. The size predicted by our model is 11.8 or 11 commission members. Since the model created in the analysis of committee size through mathematics (www.intuitor.com, 1996) resulted in a committee size of 7, and the coefficient for the marginal member is negative (implying that more members reduce the accuracy), the optimal size should be rounded down to 11.

Four other significant variables are of interest. The years as an elected official variable confirms the positive relationship expected between the quality of the plan and an elected official's institutional and community knowledge; however, it is only a small improvement in quality. Small communities, less than 10,000 residents, produce a lower perceived quality metric; this is anticipated due to limited resources available to direct to the writing of the plan. This is reflected by both the population indicator and the city or town indicator, as negative would indicate smaller population for the former and positive would indicate a smaller town for the latter. Finally, the percent of paid but not elected members on the commission produce a small positive impact on the perceived quality; this is consistent with the historic and educational capital that they bring to the process.

This result supports the idea that paid consultants provide a positive component to the planning process.

Conclusions

The model presented above attempts to provide insight into why some committees create more durable plans while others do not. The implications of allowing paid but not elected members onto the committee are that consultants (and community staff) may serve a vital role in providing information and expertise to the process. While it can be argued that planning should rely on stakeholders, the inclusion of "outsiders" into the planning process is efficient. As communities struggle with residential growth and urban sprawl, the need for successful comprehensive planning grows. Those communities investing thousands of dollars into plans need researchers to help identify strategies that work. The conclusions presented here indicate that hiring a consultant does have a slightly positive role in creating a plan that doesn't require constant revision. It also suggests that a balance of members representing the community both elected and not is also required to ensure longer term stability of the plan.

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APPENDIX A:
2005 Comprehensive Planning Survey

You have been asked to complete the following research survey. It should take approximately 10 minutes for you to complete the survey. The following survey, sent to communities that filed their Comprehensive Plans with the Wisconsin DOA during 2002 and 2003, is designed to investigate how valuable the process of completing these plans were to the communities they were designed to serve. Your responses are strictly anonymous and your participation is completely voluntary. By completing the survey, you are giving your permission to the researcher to use your anonymous responses for use at professional meetings and in research publications. Thank you for your participation.

1. Please tell us some basic information about yourself:
   Are you: □ Male □ Female

   Current age: _____
   Years involved in community planning: _____

   Years spent as an elected official: _____

2. Please tell us a bit about your community:
   Estimated population: □ 0 – 10,000 □ 11,000 – 50,000 □ > 50,000
   Is your community: □ City □ Town □ Village

3. Tell us about your Planning Commission:
   a. Did you reach your decision by:
      □ majority rule □ consensus
   b. _____ # of voting members

   c. ____ % elected

   d. ____% volunteers

   e. ____ % paid and not elected (these 3 should equal 100%)

4. Tell us about your Plan

   a. _____ % developed by consultants

   b. _____ % taken from previous plans
   c. Length of time taken to pass (in terms of hours of meeting time): _____

   d. _____% of plan paid by local funds only.

5. How well is the plan working?
   a. Is plan regularly referred to when making decisions?
      □ never □ sometimes □ always
   b. Frequency of exceptions to plan
      □ never □ one-four times □ five – ten times □ more than 10 times
   c. How many years do you expect will pass before the plan needs major revision?
      □ 5 years □ 10 years □ 20+ years

[1] If each committee member has an independent probability greater than ½ of making the correct decision, then the probability that the majority of the committee makes the correct decision increases with the number of members (Grofman and Owen, 1986). This is based on the expectation that individuals are more likely (perhaps 60%) to be correct than to be incorrect (perhaps 40%).

[2] Question number 5a: "Is plan regularly referred to when making decisions?" Never=1, Sometimes=5, Always=10.
Question number 5b: "Frequency of exceptions to plan" never=10, one-four times=7, five-ten times=4, and more than 10=1.
Question number 5c: "How many years do you expect will pass before the plan needs major revision?" 5 years=1, 10 years=5, and 20+years=10.